# Products Finishing

CLEANING
PLATING
POLISHING
FINISHING

APRIL 1953

# LEA COMPOUND

★ 1923—Industry's Pioneering Greaseless Composition

★ 1953—Industry's Leading Greaseless Composition for Polishing—Buffing—Burring—Satin Finishing

THERE has never been any deviation in the quality of ingredients going into the making of Lea Compound . . . always the best available and always blended and compounded to maintain their excellent finishing characteristics.

There are grades in everything. We could use inferior and cheaper abrasives. We don't. We use the best obtainable for the work to be done. We could be a little slip-shod in grading them. We aren't. We carefully size all grits. We could use the cheaper glues. But we don't. We use the best hide glues on the market. We could use less time and care in mixing these ingredients and in filling the tubes. We don't.

Lea Compound—and it is symbolic of all Lea products—has made an enviable record in the field of clean, efficient, economical metal and plastic finishing. Use of the best materials and care in manufacture are major factors. The question confronting you is whether you can afford to do your finishing with inferior compounds . . . with anything short of the best.

**LEA GRIPMASTER**

**POLISHING WHEEL CEMENT**

matching the high quality of other Lea Products, is now obtainable through

**LEA MFG. CO. OF MICHIGAN, INC.**
14066 Stansbury Ave.,
Detroit 27, Michigan

Burring, Buffing, Polishing, Lapping, Plating and Spray Finishing . . . Manufacturers and Specialists in the Development of Production Methods, Equipment and Compositions.

Manufacturers of Lea Compound and Learack . . . Industry's quality buffing and polishing compounds for over 30 years.

**THE LEA MANUFACTURING CO.**
**16 Cherry Ave. Waterbury, 20, Conn.**

*Affiliated Companies*
Lea Mfg. Co. of Michigan, Inc.
14066 Stansbury Ave., Detroit 27, Michigan
Lea Mfg. Company of Canada, Ltd.
370 Victoria Street, Toronto 2, Canada

# We help our customers write success stories

Every day 200 Oakite Technical Service Representatives use Oakite cleaning materials and methods to help thousands of Oakite customers accomplish metal-cleaning jobs that are important parts of big production operations.

When a busy customer sends a few words of appreciation, we treasure those words as a *success sentence* that we have helped write in his *success story*.

Here are brief explanations of the *success sentences* quoted above:

1. After 6 months use of Oakite Special Protective Oil for preventing rusting, this manufacturer of precision steel parts estimated savings at more than $6,000.

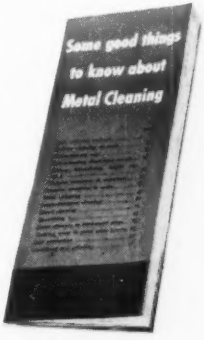
2. The use of Oakite Composition No. 95 for conditioning zinc-base die castings before plating cut cleaning rejects for this hardware manufacturer and showed other "very fine advantages."

3. For burnishing, "Oakite Composition No. 3 is here to stay" says this maker of aircraft instrument parts, who adds "Pinions are polished to the roots of the gears. Magnesium parts are brilliant."

How about your success story? We'll be glad to tell you how we can help. Just drop a note to Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

**FREE** Ask for our booklet "*Some good things to know about Metal Cleaning.*" It discusses our methods for:

| | | |
|---|---|---|
| **Tank cleaning** | **Pickling, deoxidizing** | **Burnishing** |
| **Machine cleaning** | **Pre-paint treatment** | **Paint stripping** |
| **Electrocleaning** | **Steam-gun cleaning** | **Rust prevention** |




SPECIALIZED INDUSTRIAL CLEANING

**OAKITE**

MATERIALS • METHODS • SERVICE

*Technical Service Representatives in Principal Cities of U. S. & Canada*

**ONE OF A NUMBER** of different tumbling barrels in which sample parts are processed in the new Norton barrel-finishing department.

## Get the

# "TOUCH OF GOLD"

### Sample tumbling FREE in the new Norton test department

Can you "tumble" with the "Touch of Gold"? Can you be sure that you are adding value to your product each time the barrel turns in the barrel-finishing operation? Have you investigated this method as a way to more efficient processing and higher profit?

You can get samples processed without cost — in the newly enlarged Norton sample processing department with tumbling barrels of different types and capacities, plus auxiliary equipment such as a mechanically vibrated screen. Here Norton engineers, long experienced in tumbling procedures, determine for you just what barrel-finishing can do for the metal parts you send.

The range is wide. We have been successful in finishing parts ranging from tiny needles to castings and forgings weighing several pounds. Many manufacturers already have the "Touch of Gold" with substantial savings and production speed-up.

Tests result in detailed recommendations on barrel type, size, speed and amount of ALUNDUM* Tumbling Abrasive, amount of water, type and amount of compound or cleaner, time cycles and other data.

No obligation — send now. Mail us your representative sample parts plus (a) finished sample to be matched and (b) information on your present barrel-finishing equipment, if any, including type, size and speed of barrel. Send to NORTON COMPANY, Worcester 6, Mass., attention Sales Engineering Dept., Abrasive Division. Tests take about a week.

Also available is a 55-page Norton handbook on barrel-finishing. Ask your Norton Distributor for Form 501 or write us direct.

*Trade-Mark Reg. U. S. Pat. Off.

**NORTON COMPANY, Worcester 6, Mass.**
Distributors In All Principal Cities
*Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Mass.

NORTON
ABRASIVES
*Making better products to make other products better*

This improved H-VW-M BBZ-201 is a much better, more convenient and economical bright zinc process for barrel plating. Improved . . . in its overall deposit brilliance, even in deep recesses. Improved . . . in its ease of handling because of its lower concentration. Improved . . . by a new treatment to eliminate dusting.

Your parts will not only look brighter, but they'll stay brighter longer, because BBZ-201 has a higher resistance to oxidation and tarnish. In many cases subsequent bright dipping can be eliminated. It also has an unusual tolerance for impurities – readily accepts conversion coatings – and can be soldered with relative ease. Then too, low concentration in the bath – plus low consumption–add up to real economy.

Bright zinc barrel plating with BBZ-201 is only one result of H-VW-M's constant progress for more than eighty years. It's a continuous policy, best summed up by the word Platemanship – your working guarantee of the best that industry has to offer, not only in plating processes, but in every phase of plating and polishing.

⊕ 6035

Photo courtesy of H. L. Judd Co., Wallingford, Conn.

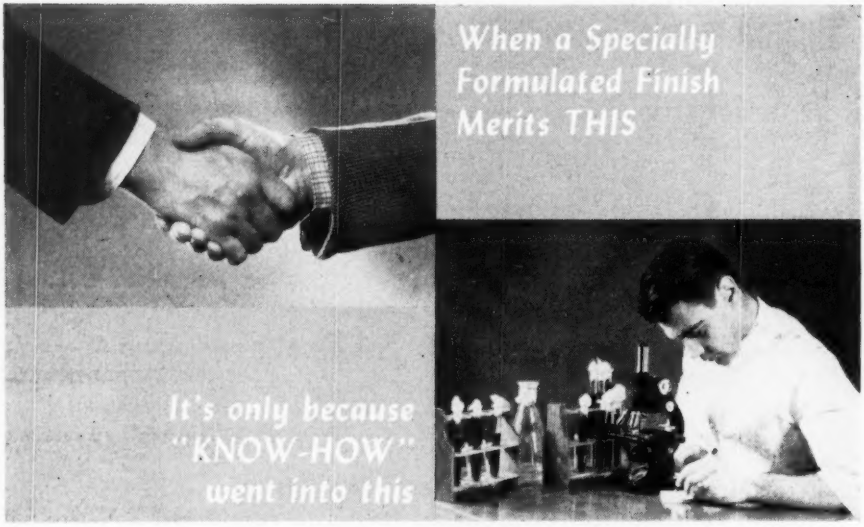
*For full information on H-VW-M's BBZ-201 ask for Technical Instruction Bulletin.*

Your H-VW-M combination – of the most modern testing and development laboratory – of over 80 years experience in every phase of plating and polishing – of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING CO., MATAWAN, N. J.
PLANTS AT: MATAWAN, N. J. • ANDERSON, INDIANA
SALES OFFICES: ANDERSON • BOSTON • CHICAGO • CLEVELAND
DAYTON • DETROIT • GRAND RAPIDS • LOS ANGELES • MATAWAN
MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH
ROCHESTER • SPRINGFIELD (MASS.) • STRATFORD (CONN.) • UTICA

**H-VW-M**

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES • EQUIPMENT • SUPPLIES




There is no more convincing proof of Egyptian Industrial Finishing Laboratory "Know How", than the increasing number of "well done" handshakes Egyptian Finishes Specialists earn from enthusiastic product manufacturers everywhere.

Put to your use, as thousands of progressive manufacturers do, the highly specialized knowledge of your Egyptian Specialist and the ingenious Egyptian Laboratory Technicians behind him. Let them help you develop an outstanding coating for your product . . . and remember . . . Egyptian assistance does not end here. Your Egyptian Specialist can keep you constantly informed of new finishing techniques and how you can benefit by them . . . he can tell you the specifications for finishing any Government Product . . . help you break finishing bottlenecks in your plant. Often his suggestions result in reduced overall finishing costs.

Invite an Egyptian Industrial Finishes Specialist to call on you today.

VARNISHES • ENAMELS

EGYPTIAN

INDUSTRIAL FINISHES

LACQUERS • SYNTHETICS

**The EGYPTIAN LACQUER MANUFACTURING CO.**

Box 444, Newark 1, New Jersey • Plants: South Kearny, N. J.—Lafayette, Ind.

VOLUME 17 NUMBER 7
APRIL, 1953

**Ezra A. Blount**
*editor*

**H. Leroy Beaver**
**Frank L. Bonem**
**Bryant W. Pocock**
*consulting and contributing editors*

**M. L. Forney**
*president*

**Gene J. Schwarber**
*advertising manager*

**Norman S. Rogers**
*art director*

**K. M. Gettelman**
*circulation manager*

**ADVERTISING REPRESENTATIVES**

Richard S. Kline
George E. Hay
431 Main St., Cincinnati 2
MAin 0182

G. M. Fillmore
Duncan W. Barton
342 Madison Ave., New York 17
Murray Hill 7-7390

John M. Krings
Tribune Tower, Chicago 11
DElaware 7-5441

The Robert W. Walker Co.
2330 West Third Street
Los Angeles 5
DUnkirk 7-4388

57 Post Street, San Francisco 4
SUtter 1-5568

MEMBER
CCA NBP

*Published monthly and copyright (1953) by*

Gardner Publications, Inc.
431 Main Street, Cincinnati 2, Ohio
Printed in U.S.A.

# Products finishing

## CONTENTS

A Star Salesman Who Never Makes a Call ..... 23
Editorial

Practical Aspects of Zinc and Cadmium Plating ..... 24
By Edwin F. Ottens

Vacuum Impregnation of Castings Forms Base for High Quality Paint Finish ..... 48
By John Starr

Spotlighting Finishing Progress
By Dr. Allen G. Gray

—Mica, Used as an Extender, Improves Salt Fog Resistance of Paint .... 58
—Chromic Acid Rinse Benefits Phosphate Coatings ..... 64
—Electrostatic Atomization of Organic Finishes ..... 68
—Sanding Paint Test Panels Accelerates Rusting ..... 76

Practical Applications of Modern Products
—Switch Boxes Cleaned, Dip-Enameled, and Baked Automatically ..... 82
—Cleaning Stubborn Deposits from Stainless Fabrications ..... 83
—Air-Inflated Grinders Reduce Polishing Time ..... 85
—Continuous Paint Stripping Now Practical ..... 85

News of the Industry ..... 90
New Equipment, Materials, Processes ..... 106
The Finishing Touch ..... 142
Opportunity Section ..... 143
Index to Advertisements ..... 144

# BLACOSOLV

## the solvent with the modern neutral stabilizer

*The solution to your solvent problems . . . the most modern solvent for high stability in* ***vapor degreasing*** *of metal parts. Contains a mixture of entirely new and different stabilizers that* ***prevent*** *solvent breakdown and possible acid formation. Blacosolv is the* ***one solvent*** *for all metals or combinations of metals. Does not affect or stain any metal . . . easily distilled and reclaimed from oil and impurities . . . the most economical solvent that assures better production and higher stability.*

**G. S. BLAKESLEE & COMPANY**

*Established since 1880. Manufacturers of Blakeslee Solvent Vapor degreasers—Metal Parts Washers—Blacosolv degreasing solvent.*

**Write to the Chicago office today for full information.**

G. S. BLAKESLEE & COMPANY
1844 South 52nd Avenue
Chicago 50, Illinois

G. S. BLAKESLEE & CO., LTD.
1379 Bloor Street, West
Toronto 9, Ontario, Canada

new

# National Air Sander

STRAIGHT-LINE ACTION...SINGLE PAD

FAST • LIGHTWEIGHT • VIBRATIONLESS

MODEL 600

$82.50

Here is National's new, powerful, high-production sander which weighs only 5 pounds but operates at 3200 rpm. Rapid stock removal is assured by the 5/16" stroke and 25 sq. in. of abrasive area. Either felt or rubber backing pads are available, and a built-in water spray makes wet sanding easy. National manufactures a complete line of block sanders, offering either orbital or straight line action . . . electric or air driven.

**Write for further information today!**

NATIONAL NS SANDERS

**NATIONAL AIR SANDER, INC.**

2820 AUBURN ST. ROCKFORD, ILLINOIS

# SAVE ON WHEELS . . . STEP UP PRODUCTION

Speeds from 1,500 to 3,000 RPM are instantly available with the turn of the dial while the lathe is in operation. Polishing and buffing (cut-color-satin) can be done on one machine with no delays or lost motion.

The Hammond VRO Variable Speed Polishing Lathe definitely will step up production and improve finish. Maximum wheel economy is assured, too, because efficient peripheral speed can be maintained at all times — wheels can be used right down to the flanges before discarding.

## Hammond VRO VARIABLE SPEED POLISHING AND BUFFING LATHE

the DIAL does it

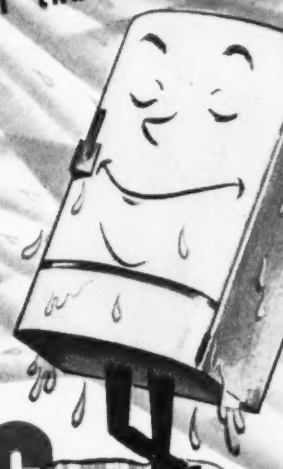
**WRITE FOR CATALOG**
Catalog showing all Hammond polishing lathes, abrasive belt, "OD" and automatic finishing machinery gladly sent on request. Write today!

Hammond of KALAMAZOO
GOOD MACHINERY SINCE '82

Hammond Machinery Builders INC.

1622 DOUGLAS AVENUE • KALAMAZOO 54, MICHIGAN

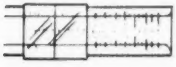
here's an acid cleaner that really cleans!



# DuBOIS ION-KOTE

**. . . phosphatizes . . . provides a uniform coating . . . rinses perfectly!**

The Dubois Engineered Metal Cleaning program covers every phase of spray washer and immersion tank cleaning. For cleaning problems, here's the DuBois product: ION-KOTE . . . cleans better than any acid cleaner . . . it phosphatizes . . . provides *uniform* coating . . . gives complete, spotless rinse . . . deposits hard, dust-free, phosphate coating on metal, preventing rusting, increasing paint adherence.

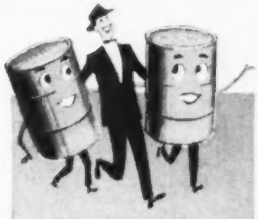


**FREE,** handy plastic slide rule. Write Dept. A.

*The* **DuBOIS** *Co., Inc.*

**Cincinnati 3, Ohio Los Angeles 33, Calif.**

DuBois warehouses and representatives are located coast-to-coast

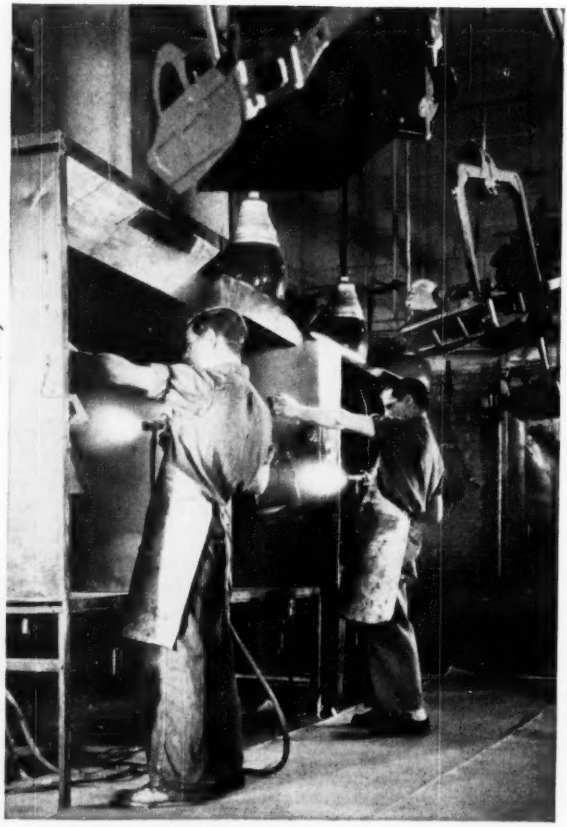


**TRIAL OFFER!**

**DuBois' exclusive Engineered Metal Cleaning Service includes this unusual trial offer: Get one drum of Ion-Kote on trial. If this product does not meet every one of the claims made for it, the unused portion of the drum can be returned for FULL credit.**

# Scale model toys

DeVilbiss



*Spray painters using DeVilbiss equipment to finish 1/16 scale MODEL road graders.*

***BRANCH OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES THROUGHOUT THE***

# are *Spray-Painted*

## --just like the "*big jobs*"

Famous MODEL toys, made by the Charles Wm. Doepke Mfg. Co., get their true-to-life paint jobs the same way their big brothers do – by spray.

These beautifully-designed, ruggedly-built working models last three times as long as similar toys. That goes for the durable finish, too. Because quality is so important, ordinary mass production toy painting methods would not be practical. That's why the Doepke Company chose DeVilbiss Spray Equipment – the same equipment used by automotive and earth-moving machinery manufacturers.

Four men work in a water-wash spray booth using DeVilbiss spray guns, paint tanks and transformers to turn out one toy every 30 seconds. Touch-up, repair and experimental work is done in leg-type dry booths, again using DeVilbiss guns, tanks and transformers. The result is a uniform, long-lasting finish that stimulates sales.

For any of *your* products where high quality and uniformity of finish is necessary at low cost, investigate the use of DeVilbiss Spray Equipment – guns, booths, air compressors, material tanks, hose and connections. Look for the name of your DeVilbiss distributor in the Yellow Pages of your phone book, or write to our factory for information.

**THE DEVILBISS COMPANY**
**Toledo, Ohio**

Windsor, Ontario • London, England
Santa Clara, Calif.

FOR BETTER SERVICE, BUY
**DEVILBISS**

***UNITED STATES, CANADA AND THE WORLD***

# News about UNICHROME

Trade Mark

## Tin-lead anodes better for chromium plating

Experience shows that tin-lead alloy assures long service in chromium plating solutions. It provides better resistance to chromic-acid attack over a wide range of operating conditions. Unichrome Anodes not only use solid tin-lead alloy throughout, but also have fused-on copper hooks designed for maximum conductivity; and a body with ample area and thickness for good current distribution and cooler operation.

## COPPER PLATING PROCESS IMPROVED

The wide current density range at which the Unichrome Pyrophosphate Copper Process plates smooth and fast is maintained over long periods of continuous operation by an improvement in its makeup.

In addition, this process continues to solve other plating plant problems. It can be used in plastic lined tanks formerly used for nickel. It can be plated directly with chromium, with only simple buffing or chemical polishing if needed. It contains no cyanide to dispose of.

## By compensating

# Chromium Plating

■ Despite scarcities, many products still offer the powerful appeal of a good quality chromium finish. One method for producing such a finish offers substantial advantages. Corrosion resistance is achieved with alternate materials – copper for the undercoat, organic coating for a topcoat. As for the chromium itself, better, faster plating is being obtained with the Unichrome S.R.H.S. Chromium Bath.

### PRODUCTION ADVANTAGES WHEREVER USED

Many plants are plating to specifications with Unichrome S.R.H.S. Chromium 20 to 80% faster than with the ordinary chromium bath – and with less trouble. Self-regulating, it minimizes control and maintains top throwing power. With wider bright plate range, it avoids rejects due to "burning" or "missing." Recent reports give some idea of the great improvements this bath has worked on production, costs, and results:

## ZINC FINISH STAYS BRIGHT AS CHROMIUM

Zinc plate, when chemically treated in Unichrome Clear Dip and then fortified with a Unichrome Clear Enamel, provides a substitute finish which can satisfy exacting requirements. The Clear Dip forms a bright-as-chromium finish integral with the zinc, while the clear enamel adds extra wear and corrosion resistance to this protective finish without detracting from its brightness. This finishing system is in widespread use today on zinc die cast and steel products.

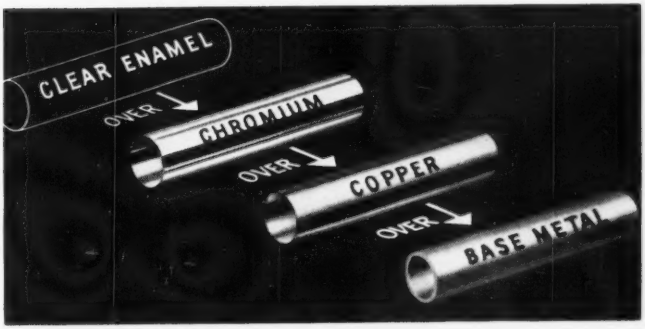
# COATINGS for METALS

*Metallic . . . . . Organic . . . . . Decorative . . . . . Protective*

## for nickel with other materials

# Still Gives a Lasting Finish

Fishing line guides are plated in 2/3 the time by S.R.H.S. Chromium, and with better coverage and brighter plate. By using this bath, another plant doubled capacity for plating various parts including zinc die castings—and eliminated the former need for special racking. Companies report savings in bath maintenance, too.




### A GOOD COPPER UNDERCOAT

Copper plating on zinc die castings and steel contributes to corrosion resistance, and to a brighter finish. Copper deposited from the Unichrome Pyrophosphate bath makes an excellent base for the chromium. If base metal condition and quality requirements permit, it needs no buffing or chemical polishing. If not, it can be easily polished either way.

### CLEAR "ENAMELS" COMPLETE THE SYSTEM

Unichrome Clear Coatings were developed especially for use on plated and polished metals. They add extra protection without detracting from brightness.

Baked on Coating B-115, while virtually invisible, protects against moisture, handling, corrosives, and wear.

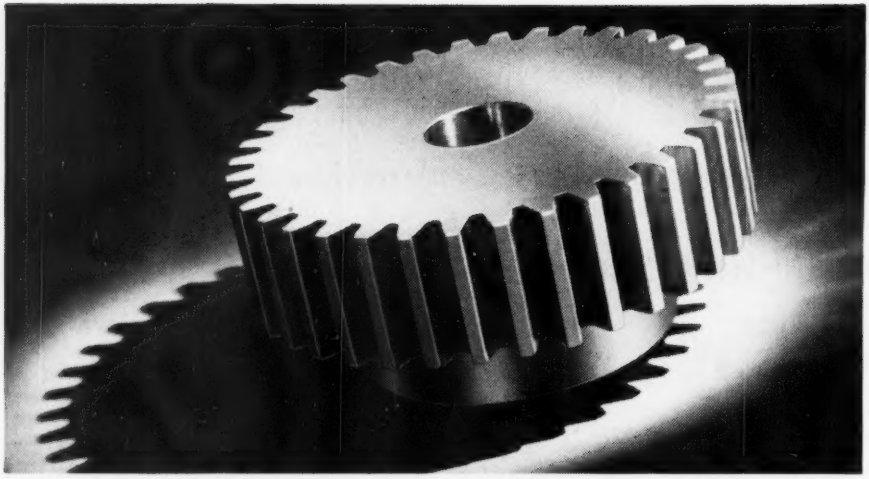
For an air dried or force dried finish, Unichrome Coating A-140 provides corrosion-resistance comparable to many coatings that are baked.

Unichrome Coating B-159 also gives outstanding service. A well known manufacturer for instance, is using it on chromium plated refrigerator shelves and is getting not only superior protection but also twice the film thickness at half the cost of the coating formerly used.

★ ★ ★

*Write or phone for more information.*

**UNITED CHROMIUM, INCORPORATED**
**100 East 42nd Street, New York 17, N. Y.**
**Detroit 20, Mich. • Waterbury 20, Conn.**
**Chicago 4, Ill. • Los Angeles 13, Calif.**
**In Canada:**
**United Chromium Limited, Toronto, Ont.**



# High lustre finish... faster with SUPER-HONITE CHIPS!

**YES!** New Super Honite gives a better finish—*faster*—than any other barrel finishing abrasive. That's because it's the world's *toughest* abrasive chip—engineered for grinding and burnishing to a high luster finish. Does it in jig time, too, because chips don't crumble or pulverize to slow the job.

So remember, for a better finish—in record time—specify Super Honite. No other chip cuts faster—no other chip cuts as long!

**TOUGHEST NATURAL CHIP!** Use Regular Honite for close tolerance work or minimum removal of metal. No other barrel finishing abrasive—not even granite—retains its edge as long as Regular Honite.

WRITE TODAY for your free copy of "3M Barrel Finishing" . . . it's filled with helpful information for increased efficiency, lower costs. Address Minnesota Mining & Mfg. Co., Dept. PF43, St. Paul 6, Minnesota.

Name.....

Company.....

Address.....

City.....Zone...State.....

Honite® BRAND

Made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Brand Pressure-sensitive Tapes, "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.

3M COMPANY

Cincinnati
CLEANING MACHINE

# "Tremendous Time and Labor Saver!"

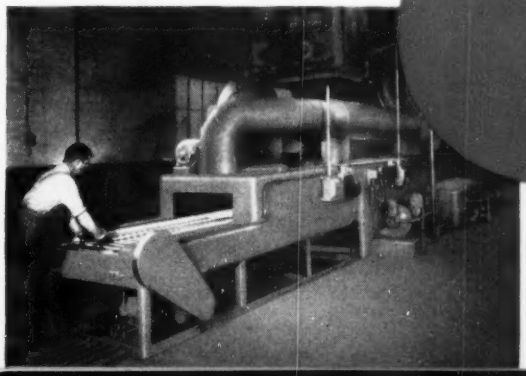
**FOR MIDWESTERN MANUFACTURER**

**time saved . . . 75%**
**labor saved . . . 81%**
**results . . . much better**

Cleaning steel channel and moulding, this firm formerly used methods requiring the full time of four workers every day. Cincinnati engineers studied the cleaning problem, and adapted a Cincinnati wash, rinse, and dry belt-conveyor washing machine to the job. With this machine, results are "much better," and the work is done by only two operators working just three hours per day.

If you have no automatic cleaning equipment, or if you wish to modernize your present equipment to reduce your costs, consult Cincinnati engineers. From long experience, they can show you by case histories closely approximating your needs how a Cincinnati machine or system can improve your cleaning and reduce your costs.

Write for latest literature.



Cincinnati
CLEANING & FINISHING MACHINERY CO., INC.
311 HECLA STREET
IRONTON, OHIO

# UDYLITE FULL AUTOMATIC CROSSES OFF REJECTS . . .

## at the Dura Company of Toledo!

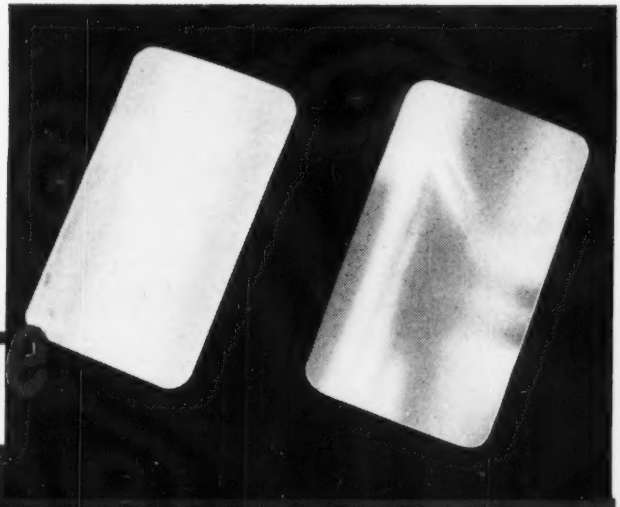
"Thousands and thousands of window regulators for automobiles go through the Dura Company Zinc Plating installation. Our Udylite Full Automatic practically eliminates rejects."

But that's only part of the Dura Company story. With their Udylite Full Automatic they get high production runs, too. This means a quality product at rock-bottom cost. It's easy to see that Udylite equipment is paying off for this modern, progressive company.

Why not bring YOUR plating problem to Udylite. Let us show you how Udylite equipment, research and supplies can give YOU top results. Call your Udylite technical man today or write direct. There's no obligation. THE UDYLITE CORPORATION, DETROIT 11, MICH.

PIONEER OF A BETTER WAY IN PLATING

THE Udylite CORPORATION
DETROIT 11, MICHIGAN



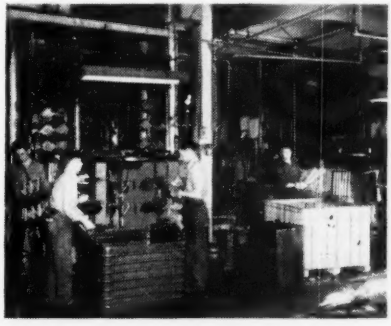
# Udylite

## BRIGHT ZINC PROCESS IS *really* BRIGHT!

The picture tells the story. It's easy to see the difference! Eye appeal . . . buy appeal . . . for the products YOU make can be vastly increased.

An extremely *bright* finish which is *economical* and *quick* is assured with Udylite Bright Zinc Process. Complicated parts with deep recesses or low current density areas can be plated bright with this process. And here's the best part of all! Only one paste brightener is required for the whole process. This makes it a very simple and easy operation.

Udylite automatic zinc plating installation at Dura Company of Toledo.



Udylite furnishes a complete line of zinc plating supplies – anodes, containers, processes. If you have a zinc plating problem, call your Udylite technical man today. He'll give you the entire story. Or, write direct to THE UDYLITE CORPORATION, DETROIT 11, MICHIGAN.

PIONEER OF A BETTER WAY IN PLATING

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

NOW!

# Prep-pik-l

PHOSPHORIC ACID PICKLING PROCESS

*Consider these Advantages*

N.C.Co.

METALPREP
GALVAPREP
LYFANITE
PREP-PIK-L
PREP-N-COTE

Metal Conditioning
Rust Removing
Phosphatizing
products for
STEEL, ALUMINUM,
ZINC, CADMIUM, etc.

*For Complete Information, Send for Bulletin Form 51-3A*

- Simultaneous Pickling and Phosphatizing in One Bath
- No Plant Corrosion Trouble from Fumes
- Less Floor Space for Pickling
- Meets Government Specifications
- A Very Effective Remover of Rust and Heat Scale

**NEILSON CHEMICAL CO.**

*MANUFACTURERS OF METALPREP*

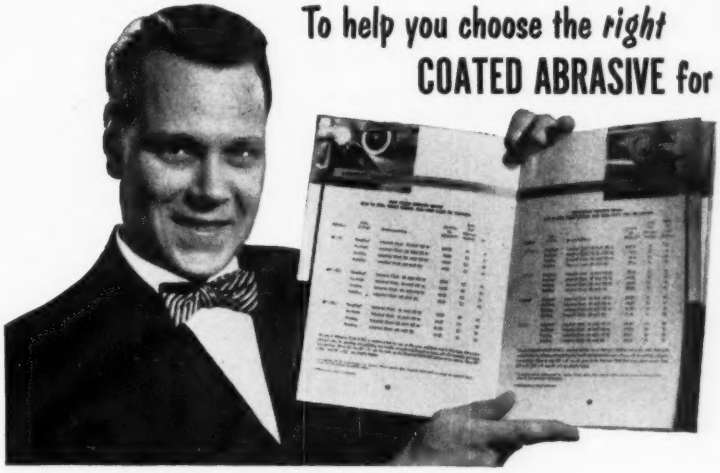
2682 Tecumseh Road
Windsor, Ontario

6561 Benson St., Detroit 7, Mich.

3411 Union Pacific Ave.
Los Angeles 23, Calif.

# IT'S YOURS...FREE!

## To help you choose the *right* COATED ABRASIVE for every job!



## 30 HELPFUL PAGES... covering

**Metalworking:** *Hand and machine operations.* Portable, disc sanding; contact wheel, platen, and slack-of-belt grinding—wet and dry.

**PLASTICS, CERAMICS, GLASS AND OTHER NON-METALLIC MATERIALS**

**Woodworking:** *Hand and machine sanding and finishing;* machine sanding of all types; portable belt sanding machines.

**In addition** you'll find full information on contact wheels of all types, and on the economical "61" Port-A-Belt grinding attachments.

With this new catalog you can easily select the right belt, disc, or cut sheet for any machine or hand abrasive operation—on metals, non-metallics, or wood.

The recommendations given are *complete*—including grain sizes and types, backings, coatings, product sizes, prices and packaging information. You'll also find a useful section telling who manufactures machines used with coated abrasives, and listing model numbers and belt sizes.

### *Send for copy today!*

THE CARBORUNDUM CO., Dept. PF 82-39
Niagara Falls, New York

YES! Send me the new COATED ABRASIVE SELECTOR—Catalog No. 70.

NAME _____ TITLE _____

COMPANY _____

STREET AND NUMBER _____

CITY _____ ZONE _____ STATE _____

# CARBORUNDUM
TRADE MARK

## the ONLY source for EVERY abrasive product you need

*"Carborundum" and "Port-A-Belt" are trademarks of The Carborundum Company, Niagara Falls, New York*

82-39A

# WATERFALL IN JAPAN

## Leading Appliance Manufacturer Cuts Japanning Costs by Water Recovery Using Glidden Bombay Black Finish

This waterfall turned out to be a windfall for one of America's leading range manufacturers. It enabled HOTPOINT to substantially reduce japanning costs.

In this case, HOTPOINT utilized the idea of recovering the japan previously wasted in the draining operation. The Glidden Technical Service Department and service men helped develop this water recovery system in which dripping japan falls on a water curtain. It is subsequently recovered by an unusual emulsion breaking and separating technique.

Perhap you, too, can cut your finishing costs appreciably. Glidden —leader in the development of quality product finishes—will be glad to work with you. Write us today.

**THE GLIDDEN COMPANY**

**INDUSTRIAL FINISHES DIVISION**

**11005 Madison Avenue • Cleveland 2, Ohio**

**SALES OFFICES AND FACTORIES:**
San Francisco, Chicago (Nubian Division—1855 North Leclaire Avenue), Minneapolis New Orleans, St. Louis, Cleveland, Reading, Atlanta and Toronto, Canada.

# HD-N

## *Cuts Cleaning Time*

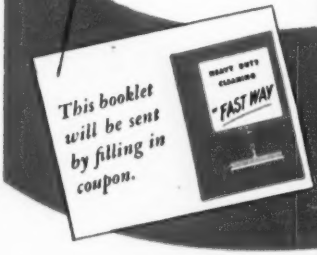
Cowles HD-N Cleaner, the *new* heavy-duty soak cleaner for ferrous metals, will often do in 10 minutes what it takes other cleaners 30 minutes or more to do. It is specifically formulated as a straight or barrel soak for precleaning before plating, enameling, pickling, painting, back-shop reconditioning — or anywhere a heavy-duty cleaner is needed to remove stubborn types of soil.

The latest developments in metal cleaning research have been incorporated in HD-N to assure maximum detergency under all conditions of usage.

HD-N may also be used on such active metals as brass and zinc, if some attack is acceptable.

HD-N penetrates and removes such soils as oil, carbon, grease, drawing compound, graphite, road and shop dirt in *one* cleaning operation. It is fast, thorough, and does a complete job . . . is readily and completely soluble in hot water.

**COWLES CHEMICAL COMPANY**
Metal Cleaner Department
7016 Euclid Avenue • Cleveland 3, Ohio




*This booklet will be sent by filling in coupon.*

Cowles Chemical Company
7016 Euclid Avenue
Cleveland 3, Ohio

Please send me booklet, "HEAVY DUTY CLEANING THE FAST WAY."

Name _____

Company _____

Address _____

City _____ Zone ____ State _____

Pf editorial

APRIL, 1953

Vol. 17, No. 7

# A Star Salesman Who Never Makes a Call

The desire to buy and use the products of American industry stems from two properties characteristic of the products. First, our products are known for superior performance. Second, they have been designed and produced with increasing attention paid to the attractiveness and durability of the surface finish.

The roles of the product designer, finish manufacturer, process or material supplier, technical service engineer, and research scientist in contributing to the development of strikingly attractive and durable finishes are recognized and appreciated.

Orchids are due, also, to another member of the team. This man works for the product manufacturer. He is charged with the responsibility for producing the finest finishes possible with the finishing materials, processing equipment, and personnel available to him. This man's intimate knowledge of plant facilities and limitations—possibilities of production capacity and versatility—makes it essential to use his judgment in the selection of the finish which will work best in that particular plant. He must see to it, also, that plant processing equipment is used correctly; he must make sure that metal is properly prepared for finishing, and that each finish is applied properly. A special test of his ingenuity arises in periods of metal shortage when he must compensate for changes in material specifications by alterations in the finishing process.

Because this man is intimately involved in the finishing operation, he can offer many worthwhile suggestions which will result in improved quality, reduced scrap, and lowered cost.

In short, the Finishing Foreman contributes a great deal to the attractiveness and salability of the product. He never calls on customers, but he's a star salesman just the same!

Ezra A. Blount

—EDITOR

# Practical Aspects of Zinc and Cadmium Plating

By EDWIN F. OTTENS
Philco Corporation, Philadelphia, Pa.

FEATURE

**Prewar Preference for Cadmium**

Prior to World War II, with its cadmium famine for the electroplater of civilian goods, the general tendency in the trade was the preferential use of cadmium in place of zinc on a given article if the specifications were liberal enough to permit such an alternative. This might seem surprising when one considers that cadmium costs ten to fifteen times as much as zinc on a weight basis, but it is quite understandable if the comparative ease and simplicity of cadmium plating is taken into account. The major cost of plating any given part is primarily labor of preparation and plating, with metal costs being secondary. The labor cost figure is decidedly influenced by such factors as "ruggedness and stability" of the plating solution coupled with overall plating efficiency, covering and throwing power.

The factor of ruggedness and stability in a commercial job plating shop is definitely on the side of cadmium plating. First of all there were quite a number of truly bright cadmium plating processes having a wide bright current density plating range, whereas most bright zinc processes were effective only at low current densities. Furthermore, bright cadmium plating solutions are more tolerant to the presence of other metals commonly found in the plating room, like copper, nickel, or zinc which may be inadvertently introduced into the plating bath. Bright zinc solutions on the other hand have practically no tolerance for copper, nickel, and cadmium, and of necessity the "down-time" for purification of a contaminated solution, or even discarding a badly contaminated solution and making up a new one, must influence the choice between the two metals. Finally, cadmium solutions in production are very stable and show less tendency to wander from optimum operating conditions over a period of time. Zinc solutions on the other hand have a comparatively narrow optimum operating range which is decidedly influenced by temperature. Naturally the control is simplified with cadmium solutions and good work can be turned out steadily without too many rejects. This is also a big boon to the small job plater without laboratory facilities for control, and no doubt is the primary factor in his choice of cadmium over zinc.

EDWIN F. OTTENS, assistant chemical engineer for the Philco Corporation, is vice president of the Philadelphia Branch, American Electroplaters' Society, and chairman of the Branch Exhibits Committee for the 1953 A.E.S. Convention to be held in Philadelphia.

The factor of overall plating efficiency decidedly favors cadmium with roughly fifteen to twenty per cent greater efficiency than zinc—a no mean item in high production. Cadmium will plate over a variety of metal surfaces including cast and malleable iron whereas zinc will not. In addition cadmium will cover deeply recessed articles earlier in the plating cycle and thereafter continue to "throw" more heavily than a zinc solution. This naturally gives cadmium a big edge on zinc for plating complex shaped parts.

**Present Position of Cadmium**

With the present restrictions on the use of cadmium being lifted there is no noticeable concerted rush back to the use of cadmium. The plater has learned to master the art of consistently good zinc plating and is determined to take advantage of the price differential between the two metals, and it is doubtful if cadmium will ever regain its former position over zinc except in small specialized instances. The last war has made the plater acutely aware that in order to meet government specifications, plating must cease to be an art and become more of a science. Thickness and coverage requirements made him become familiar with instruments and testing methods, as well as chemical solution control. As soon as these changes occurred, zinc plating solutions were not too difficult to control in production and consequently the plating trade is not particularly concerned whether cadmium is scarce or plentiful.

**Zinc Plating**

The zinc plating bath generally used has the composition:

| | |
|---|---|
| Zinc as metal | 5.5 oz./gal. |
| (as zinc cyanide) | 10 oz./gal. |
| Free sodium cyanide | 7.5 oz/gal. |
| Caustic soda | 10-12 oz./gal. |

While we may think of this as a cyanide plating bath, it is really a sodium zincate ($Na_2ZnO_2$) bath with added cyanide. It has been demonstrated that zinc can be plated from a simple solution of zinc oxide in caustic soda, but not to any degree from a bath of zinc cyanide in sodium cyanide. The zincate plate is coarse and unattractive; the addition of sodium cyanide improves the grain structure, appearance, and other qualities.

The zinc concentration is important in governing the cathode efficiency and the above concentration is generally satisfactory for both barrel and

still plating. Lower concentrations can be used for barrel plating or for special purposes and correspondingly higher concentrations for high speed plating.

The proper amount of free cyanide provides smoothness and brightness of plate and otherwise improves the metal grain structure. Care should be exercised not to have an excess of cyanide over and above that necessary to produce the desired quality of plate, because such excess cyanide causes cathode efficiency to fall off rapidly.

The caustic soda level should be comparatively high to promote good anode corrosion and high plating efficiency, and to maintain a wide bright current density range. The concentration level is not critical as long as a minimum concentration of 9-12 oz/gal. is maintained. Higher concentrations, while not harmful, add to the viscosity of the solution and the difficulty of subsequent rinsing, which is quite a problem on automatic platers. I have observed light metal stampings floating from plating rack hooks as they entered the plating bath, because of the increased solution viscosity of high caustic zinc solutions.

### Operating Conditions

Zinc solution plating efficiencies are somewhat critical in regard to temperature. Commercial solutions have poor efficiency and throwing power at temperatures below 70 deg. F., and consequently after a


3 QUICK FACTS

Tell How You Can

**Finish Any Metal BETTER for LESS**

If you want to do a better job of metal-finishing, and *save money doing it*, VINSYNITE can help you. Here's how:

**1. Vinsynite** is applied simply, by brush, spray or dip. It involves only one step, requires no chemical control, no heating, no special equipment.

**2. Vinsynite** is versatile. It performs successfully on any metal. Even if your product is made from several different metals, it can be painted *after* parts are assembled.

**3. Vinsynite** outperforms other coatings in adherence and corrosion-resistance. Forms a perfect base for any types of top coats.

Regardless of what you finish, Vinsynite can help you finish it *better* for *less*. Send for free booklet and specific test data.

Test specimen of steel tubing. Under severe distortion both Vinsynite and Vinyl top coat are unaffected.

SPECIALTY COATINGS, INC., Division of THOMPSON & COMPANY

1000 Allegheny Ave. • Oakmont, Pa.

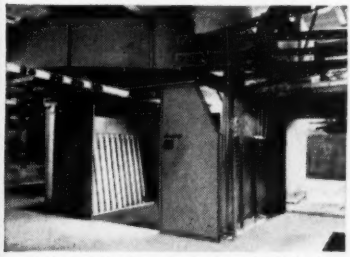
**Vinsynite**

COMBINES PROTECTION AND ECONOMY

# Schmieg Complete FINISHING SYSTEMS

These photographs of SCHMIEG finishing equipment recently installed in the ultra-modern plant of a large manufacturer of kitchen equipment and other metal specialty items.

Above is SCHMIEG air supply equipment located in the building penthouse. During operation, doors in equipment enclosure are closed. Stack and fan is one of five stacks from spray booths on the floor below.



SCHMIEG Uni-Flow prime spray booth looking into booth from operator's side. Door in foreground is closed during operation of the booth.

## ask the Engineers...

Why SCHMIEG Finishing Systems give best performance per dollar invested.

It's no secret that design experience and engineering skill have put SCHMIEG out in front, where careful planning and reasons of economy are most necessary for specific plant installations.

SCHMIEG Uni-Flow SPRAY BOOTHS offer important advantages in space saving and operating economy.

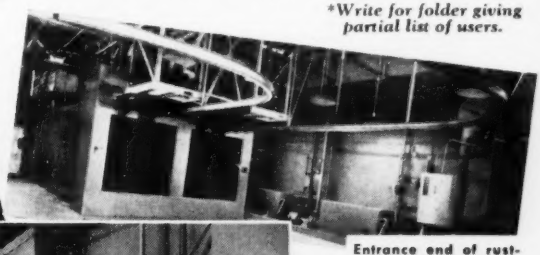
SCHMIEG Industrial OVENS are recommended by engineers who know, for hundreds of uses that save dollars in plant operations.

So also the SCHMEIG mesh-belt, conveyor type WASHERS, and the automatic circular types which time, index and rotate parts through wash, rinse and blow-off steps—operated by a single worker.

For the very best aids to efficient, money-saving industrial operations, ask the engineers who know*—about SCHMIEG. Then call in *our* engineers to design units ideally suited to your specific needs.

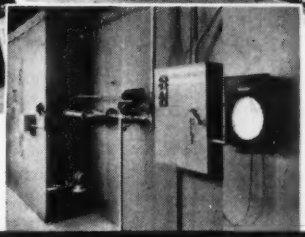
SCHMIEG Centri-Merge dust and fume elimination units have been acclaimed as the best solution to the problem of removing dust and fumes, in any industrial application.

*Write for folder giving partial list of users.*



Entrance end of rust-proofing machine. Exit end of prime and finish ovens. Note pusher conveyors to convey work through ovens.

General view of SCHMIEG Uni-Flow spray booth at exit ends.



External view of Dry-off oven. Direct fired heating equipment and circulating fans are located in offset section of oven. All controls are in panel in foreground.

THE *best* AIR PURGE *is* CENTRI⊙MERGE

**Schmieg INDUSTRIES INC.**
*Engineers & Manufacturers*

P. O. BOX 4701 • DETROIT 34, MICHIGAN

cold wintry week end the bath should first be warmed up to 85-95 deg. F. (I perfer 95 deg. F. for general all around efficiency). Higher temperatures (up to 120-130 deg. F.) are not practical as the breakdown of sodium cyanide is accelerated, making it difficult to maintain bath composition at the required level along with the expense of using more sodium cyanide. Another disadvantage in this connection is the trapping of hydrogen gas in recesses of parts under the solution, which is responsible for areas not plated, and for poor coverage.

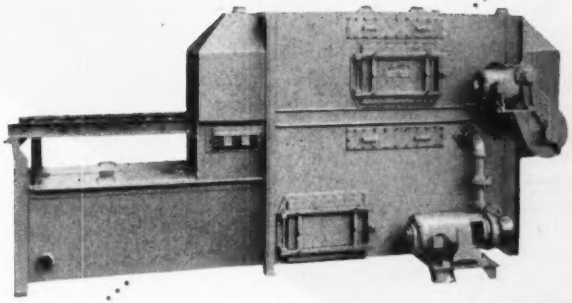
The best commercial practice is to plate at medium current densities (20-35 amp./sq.ft.) rather than unusually high current densities. Too many platers put in small tanks in proportion to the size and volume of the work being contemplated, which is a serious mistake. High current densities must then be used in order to get out the work, and the plater will soon find out that the efficiency falls off rapidly with little gain in production along with poor coverage and abnormally thin or no deposits in recessed areas.

I Leave a Perfectly Clean Mirror-Like Finish!
Improved
DETROIT
HANDY "TAC" RAG
NON INFLAMMABLE
There is no substitute for Detroit Handy "Tac" Rags. Guaranteed to remove all dust, lint and sand particles quickly and easily. Avoid costly rejects. Ready for instant use, never dry out or harden.
Send today for free sample
Standard of the FINISHING INDUSTRY Since 1934
DETRO MFG. & SALES CO., CULVER CITY, CALIFORNIA

**Removal of Impurities**

Zinc plating solutions are quite sensitive to the presence of small quantities of copper, lead, and cadmium. These are the most common types of impurities, since they enter the bath by way of the anodes or from plating racks. Lead and cadmium can readily be suppressed by the addition of sodium sulfide to the bath whereupon these metals are precipitated as sulfides and may be filtered off. Copper on the other hand can not be removed in this manner as its insoluble sulfide will not form in a cyanide solution. Of all the impurities copper is the most harmful, even as little as 0.01 oz./gal. will cause zinc plate to turn dark when bright dipped in a 0.25 per cent by weight solution of nitric acid. If the copper contamination is of the previously mentioned order of magnitude, there is no visible sign of its presence in the freshly plated part until after bright dipping. At this concentration level the best method of elimination is plating out copper preferentially on dummy cathodes at extremely low current densities (¼ to 1 amp./sq. ft.). However if the contamination is sufficiently high so that the freshly plated part is off color even before bright dipping, the major portion should be removed by "salting out" with active zinc dust, because it will take too long to dummy out this comparatively large quantity of copper. This is done by stirring in 4-8 oz. to 100 gallons of a good grade of active zinc dust. Copper is practically eliminated in this way by precipitation on the fine zinc particles. The time interval of contact is very important, as too long a treatment time will permit the redissolving of the finely divided copper. Most of the copper is

# each A-F washing machine...



*This A-F Machine was built *specifically* for removing cyanide from hardened gears... quickly, efficiently, economically!

## ...is designed for a SPECIFIC* cleaning problem

This A-F TRADE MARK assures "quality control" in your metal products washing operation.

WASHING MACHINES FOR INDUSTRY
ALVEY-FERGUSON
CINCINNATI, OHIO
SERIAL NO. TANK CAP.

# ALVEY-FERGUSON

*the original-Since 1901*

**THE ALVEY-FERGUSON COMPANY**

**624 Disney St.** REPRESENTATIVES IN PRINCIPAL CITIES **Cincinnati 9, Ohio**

removed in the first hour or so, and after this the quantity removed is negligible. Purification should be discontinued and the solution filtered. The solution can be further purified down to the threshold concentration by "dummying out" as described.

### Cleaning Preparatory to Plating

A clean, bright, adherent plate is produced by plating over a metal substrate having the same qualities. The most practical way to prepare steel articles for plating lies in the use of at least two separate cleaning stages. The first stage is used to remove grease, oil, and dirt from the parts. It is not necessary here that parts be chemically clean but just visibly clean. In this stage vapor degreasing with chlorinated solvents, solvent washing, emulsion cleaning, diphase cleaning, spray power washing are commonly used methods. The second stage of cleaning involves the use of alkaline soak cleaners and electrocleaners. In this way the second cleaner is kept substantially clean for a longer period of time, thereby minimizing the chances of unclean work and possible contamination of other successive processing solutions. A recommended cleaning lineup for barrel parts in a small shop would be two good commercial alkali soak cleaning solutions. When the first is badly contaminated, it is discarded and a new one made up to serve as the final cleaner, with the former final cleaner now serving as the pre-cleaner. In this way good cleaner solutions are always in use and yet the cleaner consumption is no higher than when using a single stage cleaning cycle.

Commercial steel cleaners are composed fundamentally of:

1. Caustic soda, to provide the necessary alkalinity. The most


CHANGE TO NESTIER and NEVER CHANGE CONTAINERS AGAIN!

Expanded Metal BASKET

It's a degreasing basket and a "tote-box" all in one!

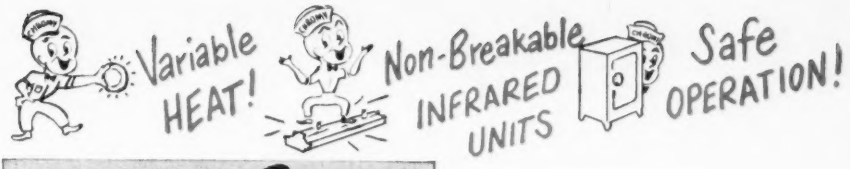
No rehandling parts before or after dipping in double-duty NesTier Baskets. Parts move immediately in same container to next operation on overhead or roller conveyor, pallet, skid or by hand. Two standard sizes in various sizes of mesh and perforated metals.

*They nest* to save space!
*They tier* in rigid stacks!

Why not standardize on the cost-cutting NesTier System?

NESTIER®

THE CHAS. WM. DOEPKE MANUFACTURING CO., INC.
ROSSMOYNE, OHIO




**YOU GET ALL 3 with**

**ALL METAL**

# Chromalox

**RADIANT HEATERS**

Uniform, exact heat is yours at the turn of the dial with Chromalox Electric Radiant Heaters. Quickly installed, Chromalox Units operate efficiently in low and high ambient temperatures; provide glareless radiation in infrared wave lengths absorbed efficiently by all colors, textures and surfaces. All-metal construction withstands shock, vibration, dust, moisture and eliminates contamination hazard.

Finger-tip control assures consistent and exact operating temperatures for varying needs. Various zones of heat within the same oven are possible by setting up separate controls for each bank of units.

**TYPICAL TIME and MONEY SAVING USES**

- PAINT BAKING
- DEGREASING
- BAKING PLASTICS
- SEALING
- DRYING GRANULAR PLASTICS
- DEHYDRATING
- MOLD DRYING
- CURING LATEX AND PLASTICS

and many other applications

**FOR MORE "KNOW-HOW" SEND COUPON**

IC-52

EDWIN L. WIEGAND COMPANY
7552 Thomas Boulevard, Pittsburgh 8, Pa.

Please send me Application Reports on Chromalox Radiant Heaters.

Name_____

Company_____

Address_____

City_____ Zone_____

State_____

**CHROMALOX**

*Electric heat for modern industry*

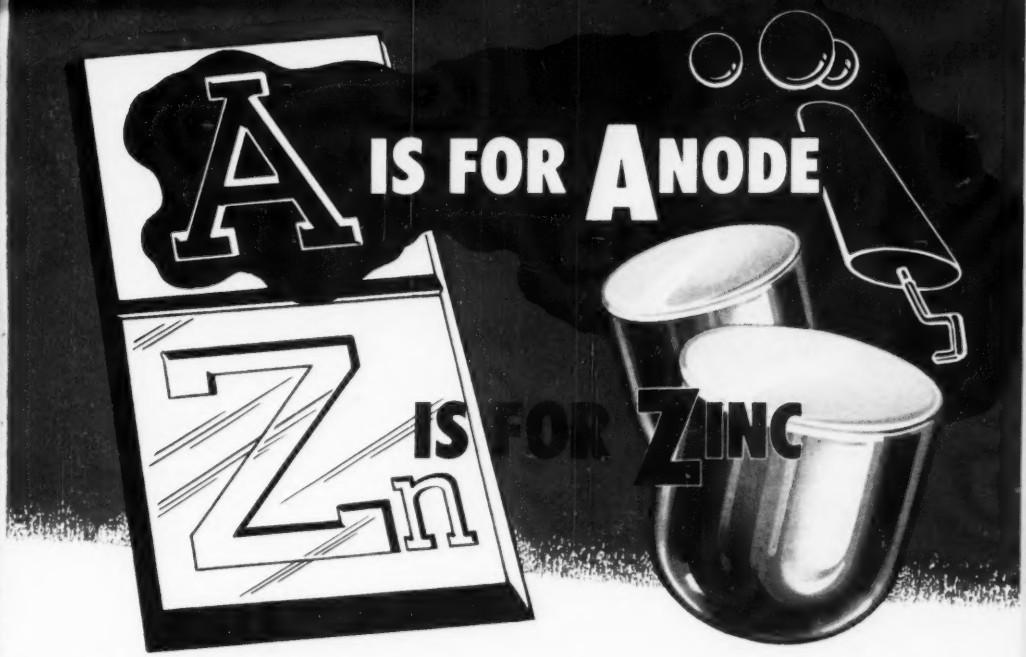
effective steel cleaners are strongly alkaline and many good cleaner formulations contain up to half their weight of caustic soda. Caustic soda has little cleaning power of its own, but its presence in the proper balance with other constituents is very important particularly in electrocleaners. The use of high reverse current in low alkalinity electrocleaners will cause pitting of the part. The subsequent addition of more caustic will minimize this.

2. Alkaline cleaning materials like the sodium silicates, trisodium phosphate, and so on, which are true detergents in their own right. These make up the bulk of the remainder.
3. Water softeners like the sodium polyphosphates, whose function it is to inhibit the formation of scale or soap curds resulting from hardness of the water used. These are used in small proportion as compared with the preceding materials.
4. Synthetic detergents, rosin and rosin derivative soaps, or other fatty acid soaps are used to improve the overall detergency. These are used in very minor quantities (of the order of 0.5-3 per cent by weight). In formulating electrocleaners care must be used not to include too much of these materials because continued use of the cleaner may result in excessive foam buildup. These bubbles, if filled with hydrogen from electrolysis, may explode when subjected to a spark from the electrode rails. Cleaners havrosin or fatty acid soaps must be carefully formulated to be quite free rinsing, as any soap clinging to the rinsed work will decompose on subsequent pickling to liberate rosin or fatty acids which cling tenaciously to the metal surface, causing blistering of the plate.

FREE!
61 PAGES OF FACTS FIGURES PHOTOS ON
BARREL FINISHING
The MOST COMPLETE story on barrel finishing ever told: Opens your eyes to amazing new developments in barrel finishing equipment - compounds, abrasives. Write Today!
A-4
ALMCO Supersheen
AMERICA'S LARGEST MFGR. OF ADVANCED BARREL FINISHING EQUIPMENT, MATERIALS & COMPOUNDS
ALBERT LEA, MINNESOTA


### Pickling

The next cleaning stage is the removal of rust and scale which can be quite difficult at times. The most common pickling agents in use today are dilute solutions of sulfuric acid and muriatic acid. Sulfuric acid is generally thought to be most effective in black scale ($Fe_3O_4$) removal. Black scale is not readily soluble in any acid, so it is removed mechanically by the acid attack undermining the scale, and the hydrogen bubbles formed prying the scale particles loose from the base. The red oxide of iron ($Fe_2O_3$) is more readily soluble in muriatic acid than sulfuric acid, depending on the degree of hydration of the oxide. A hard, dry, red oxide coating which may have been formed by high heat, as in rolling or




**Zn** has been the accepted symbol for zinc for hundreds of years. The name Wagner has come to mean "Plating anodes, materials, equipment" within a short period of 15 years. But "FLAT-TOP" has become synonymous with "Anode" in the brief years since we introduced you to the original Flat-Top Zinc Anode in 1948. It has been so universally accepted as *the standard,* that Flat-Top has been imitated, copied, burglarized — but not *duplicated.* For there is something more to Flat-Top than just a different shape, important as that shape may be. The big difference is in the Wagner process, melting and pouring under rigid metallurgical controls which preserve the purity of the basic metal itself. We offer you zinc anodes *free* of contamination! And we keep them free of dirt and grit by shipping in sealed, new containers so you can load your tanks directly from the keg.

## FLAT-TOP "TOPS" FOR PLATING BECAUSE:

- Distinctive shape makes confusion with cadmium or tin impossible.
- Original shape is retained right down to the nub.
- Smooth surface, free from gates and flash, prevents hanging on basket.
- Absence of pits and pockets eliminates inclusions of dirt, silicon, oxides and contamination from handling.
- Highest purity anode zinc available processed under strict controls.
- Clean, new wooden containers, sealed against contamination. Easy to roll, truck and stack.

If you have not yet tried Flat-Top, the original Wagner zinc anode form, our representative in your area will be glad to bring you up to date. Call him or send in the coupon below. If you would like to receive monthly price data on all the materials and supplies we furnish for platers all over the country, add your name to the Wagner "Price Tips" list.

Wagner
**BROTHERS INC.**

432 MIDLAND • DETROIT 3, MICH.
CHICAGO ROCHESTER CLEVELAND
CINCINNATI INDIANAPOLIS

**Wagner Brothers, Inc., 432 Midland, Detroit 3**

- ☐ Send name of representative
- ☐ Send full information on Wagner Anodes
- ☐ Put me on your Price-Tips mailing list

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

# Warning!

**Industrial skin accidents cause more lost time than broken bones**

It just doesn't make sense to yell about safety in your plant and neglect occupational skin hazards from oils, acids and alkalis, which are among the most frequent and severe of all factory injuries. You're risking lost production, costly claims and good employee relations.

$147.00* — that's the average skin trouble treatment cost in some areas. If you've escaped it, you're lucky. And you know it doesn't pay to push your luck. It's real cost cutting to see that your people have protective clothing, especially gloves.

The complete line of 32 non-allergic PIONEER Stanzoil Gloves of oil-and-acid resistant DuPont neoprene are meeting every hand-skin hazard in hundreds of plants — at very low cost per hour. Don't take chances with dangerous occupational dermatitis — write *today* for new Stanzoil catalog that shows you how to choose the safe economical glove for each job!

* *"Industry's Big Itch", "Occupational Hazards", December 1952.*

Industrial Products Division

The PIONEER Rubber Co., 285 Tiffin Rd. Willard, O.

QUALITY GLOVES FOR 35 YEARS

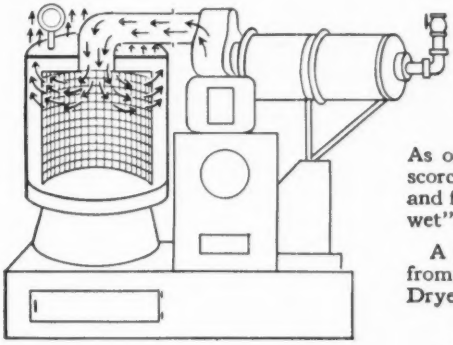
**P.S.** If your glove problems are unusual because of the nature of your product finishing operations, PIONEER welcomes the opportunity to help you solve them. Write us about your needs and problems — you'll save money, improve your glove service.


heat treating, is quite difficult to dissolve. Fresh red oxide, like rust, is easily soluble. I have found that warm or even hot muriatic of about 1 to 1 dilution of the commercial 20 deg. Baume acid is an excellent pickle for either red or black oxide or combinations of these.

The use of organic inhibitors in acid pickles to minimize pitting or embrittlement is not recommended for routine plating. These inhibitors may function by "plating out" on the bare portion of the part to be pickled, leaving the rusty or scaly areas open to attack by the acid. These inhibitors may be hard to remove by simple rinsing, and subsequent plated coatings over the adsorbed inhibitor suffer from lack of adhesion and may blister. If it is necessary to use a strongly inhibited muriatic acid pickle, as for example in removing heat treating scale by pickling for a long period of time, the pickled parts should be alkali cleaned (preferably with reverse current), rinsed, pickled lightly in dilute muriatic, and then plated without delay.

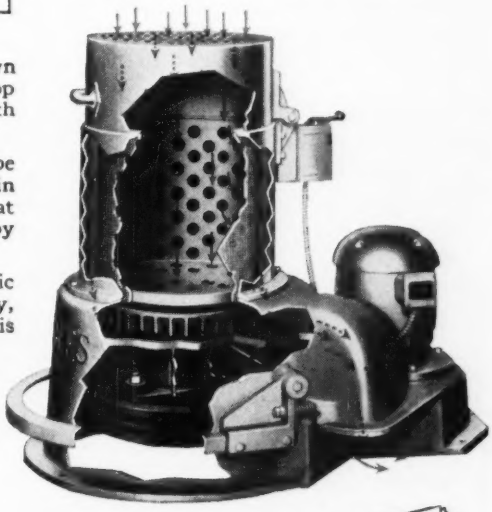
Hot rolled or high carbon steel may present a difficult problem as routine pickling opens the surface and leaves a thin film of "smut" which is mainly graphite. This smut is hard to remove by chemical or electrical means. The simplest and best way is by barrel tumbling with a mild abrasive or by brushing and wiping. Recently the new alkaline electrolytic derusting processes have been found beneficial. Certain grades of hot rolled steel may be "de-smutted" by a preliminary pickle in a weak solution of nitric acid, the concentration of which must be determined by experimentation. After nitric pickling, a quick follow-up pickle in dilute muriatic to remove any surface stains and destroy any passivity that may be formed, will leave a good foundation for subsequent plating.

# EVER BLOW INTO AN ASH TRAY?



If you did, you saw a practical demonstration of the principle of air deflection. In old type dryers, air *blown* in from the top is deflected by the top layer of parts. As one user put it, "the top layer gets scorched, the next layer is nice and dry, and from there on down the parts are still wet".

A powerful suction fan *draws* the air from the bottom of the modern Nobles Dryer. Fresh air rushes in from the top to fill the vacuum and is drawn through the entire contents from top to bottom where it is expelled with the water.



Steam or electric heaters may be mounted compactly in the cover in contrast with space consuming, heat wasting, separate units connected by pipe.

An internal expanding, hydraulic brake stops the machine smoothly, and quickly. The "brake pedal" is a ring extending around the entire working area so that the machine can be stopped instantly from any working position. In the interest of faster drying and lower costs write today!

**NOBLES ENGINEERING & MANUFACTURING CO.**

651 EAST SEVENTH STREET ST. PAUL 6, MINNESOTA

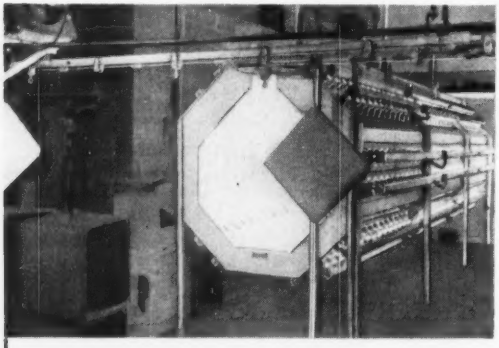
**WRITE FOR FREE Folder**

Excessive pickling and long plating time will cause high carbon steel to become brittle. Thin sections of such stock as springs, for example, will break if bent. This is due to the absorption of hydrogen by the steel. Heat treated high carbon steel should first be pickled in a good commercial inhibited muriatic acid solution, inasmuch as long pickling times may be necessary and inhibited acids are known to keep embrittlement down to a minimum. Prolonged heating of the embrittled parts after plating, for 4 to 8 hours at 400-450 deg. F., will relieve the condition in most but not all cases. The best procedure is to keep all pickling down to a minimum, employ commercial inhibited acid pickles and plate at low current densities.

Sand castings are quite difficult to plate in a cyanide zinc solution as such a surface promotes the plating out of hydrogen gas in preference to zinc. The best way to handle this problem is to refrain from pickling and remove all rust and scale by a light shot or grit blast, or by a wire brush. For plating, an initial strike of zinc in a commercial zinc fluoborate plating solution may be beneficial before further plating in a zinc cyanide solution. A preliminary strike with cadmium in a conventional cyanide cadmium bath, followed by a regular zinc plate in a cyanide solution is a trick of the trade used by many platers in the past.

**Treatment After Zinc Plating**

Fresh zinc plate as it comes from the bath in most bright plating processes generally has a thin veiling film of a translucent yellow color which masks the basic brightness of the plate. A momentary dip in weak (0.25-0.50 per cent) nitric acid removes this film and at the same time improves somewhat the tarnish and stain resistance of the plating. The

*with* **TRIANGLE INFRARED OVENS** *and* **TIPP CABLEWAY CONVEYORS**

. . . you can step up production . . . drive down your unit cost . . . because they'll do the job *better* and *faster*. With greater productivity and improved quality . . . the operation becomes decidedly more profitable. In fact, this combined equipment can pay for itself *quickly* with the economies derived from lower unit cost. And it's easily adaptable to defense or normal production, as required.

*Complete information and data on request*

**TRIANGLE EQUIPMENT CO., INC.**

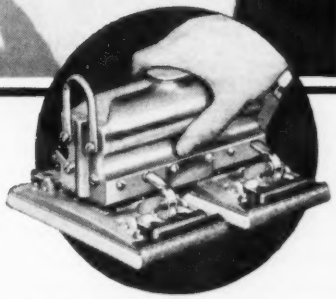
*Designers, Engineers, Manufacturers of Production Equipment*

**45 RIVER ROAD, NUTLEY, NEW JERSEY**

# Faster, smoother finishing

***of wood, metal or plastic surfaces***

**You can measure** the savings in time, labor and materials when Sundstrand Air Sanders go on the job! Here is the pioneer line of air sanders with *straight-line action* . . . duplicating hand sanding . . . producing fine finishes free from swirls, scratches, and pressure marks. Your employees turn out more work, at high efficiency, with less fatigue. Get the whole story from your local supplier, or write for Bulletin PF-4.



**FOUR MODELS FOR ALL SANDING REQUIREMENTS**

. . . ranging from a versatile single-pad sander up to a heavy-duty double-pad model. Each available with all necessary accessories for any finishing operation.

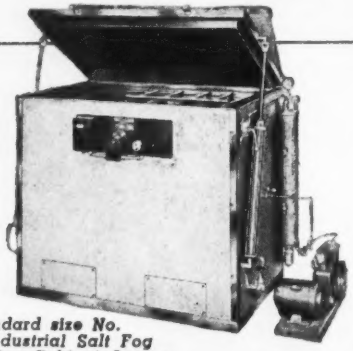
SUNDSTRAND

**SUNDSTRAND AIR SANDERS**

SUNDSTRAND MACHINE TOOL CO.

PNEUMATIC DIVISION, ROCKFORD, ILLINOIS

ACCEPTED
Salt Fog
CORROSION TEST UNITS
BY INDUSTRIAL



*Standard size No. 1 Industrial Salt Fog Testing Cabinet. Larger sizes are engineered to suit requirements.*

for over-all economy . . .

You have nothing to lose—and much to gain—when you make salt fog tests in an INDUSTRIAL cabinet. These cabinets are built to meet A.S.T.M. B-117-44T salt spray test, also Army, Navy, and Air Force standards.

***Consider these features:***

- Lucite nozzle with fixed orifice that does not corrode or clog.
- Rubber-lined box for protection against corrosion.
- Accurately controlled enclosed heating.
- Fully insulated for heat economy.
- Air by-pass valve to clear cabinet before inspection of specimen.
- Exhaust flange at rear.
- Air compressor with oil filter. (Cabinet can be connected to other air dryer.)
- Air-operated cover lifter (extra).

**INDUSTRIAL FILTER & PUMP MFG. CO.**

5904 Ogden Ave., Chicago 50, Illinois

weak nitric bright dip seems to confer a slight yet uneven passivity to the surface which can be detrimental to the success of any succeeding processing like phosphating or chemical blackening.

Zinc plated surfaces are quite strongly alkaline even if the parts are thoroughly rinsed in distilled water. One can readily check this by moistening a piece of neutral litmus paper with distilled water and pressing it against the part. In a few minutes tell-tale spots of blue will begin to show. Another good illustration of this point is mere boiling of well rinsed, freshly plated parts in distilled water. A check on the pH of the water will show a rapid rise from neutral up to pH 10 and even 11. This alkalinity, incidentally, is not removed by bright dipping in the aforementioned weak nitric acid bright dip. The alkali is either present in the pores of the plating, or may be part of the surface structure of the metal—for example a thin patchy layer of a basic sodium zincate of indeterminate composition. If the zinc is used as a base for paint, the paint film may chip and peel from the base. It is assumed that there is a reaction between the surface alkali and the fatty oils in the paint resulting in the formation of soap with subsequent deterioration in adhesion. If zinc plated parts are immersed for a short time in a weak chromic acid solution, paint adhesion is markedly improved. If we check the surface of chromic acid dipped parts with litmus paper, no alkali will be found. This fact lends support to the idea of alkali destruction of paint film bonds. The chromic acid treatment of zinc plate is a good economical method of improving paint adhesion to a degree suitable for mild indoor exposure, as there is no visible change in appearance of the plated metal, which is advantageous if unpainted areas are left for other uses.

# SPECS FOR NON-FERROUS FINISHING GOT YOU DOWN?

## FIND OUT ABOUT IRIDITE® TODAY for finishing ZINC, CADMIUM, ALUMINUM, CUPROUS METALS

**WANT CORROSION RESISTANCE?** Iridite will give you better-than-specification protection against corrosion.

**WANT PAINT ADHERENCE?** Iridite provides a firm and lasting base for paint by preventing underfilm corrosion.

**WANT EYE-APPEAL?** Iridite can give you a variety of finishes, depending upon the metal being finished . . . from clear and sparkling bright or military olive drab, to attractive dyed colors.

**BEST OF ALL,** any Iridite finish is economical and easy to apply.

## for example: IRIDITE® (AL-COAT) REDUCES NEED FOR ANODIZING

Simple chemical dip; immersion time only 10 seconds to 2 minutes; no sealing dip; color is clear or yellow depending upon your requirements; salt spray resistance equivalent to 20 to 30 minutes of anodizing, eliminates need for costly racks and electrical power.

**WANT TO KNOW MORE? Write for literature and send production samples for free test processing. See "Plating Supplies" in your classified telephone directory or write direct.**

**Iridite is approved under government specifications.**

**ALLIED RESEARCH PRODUCTS**
INCORPORATED
4004-06 E. MONUMENT STREET • BALTIMORE 5, MD.

Manufacturers of Iridite Finishes
for Corrosion Protection and Paint Systems on Non-Ferrous Metals; ARP Plating Brighteners.
Metal Cleaner Unequaled L. M. HUTCHER COMPANY

There are other methods of treatment which improve paint adhesion and which in many cases are used as finishes in themselves. These processes form what is known as "conversion coatings" as they are formed by sacrificing part of the surface of the plated metal, and "converting" it into an equivalent chemical coating of the desired properties. Among the more common conversion coatings are phosphate, chromate, and chemical black (molybdate) coatings. All these coatings are neutral or slightly acidic and are therefore good paint substrates.

Phosphate coatings are readily formed on zinc by any of the well known proprietary processes. The most uniform and fine grained deposits come from pieces which are freshly plated and still wet from the last rinse. It is well to refrain from the use of weak nitric bright dips as the variable passivity so formed interferes with the production of a uniform coating.


Save Costly Operations

BUY

ENGLISH WALRUS

AT LOWER PRICES

Polishing and Buffing

All Metals

Available in full Sides, half Sides, Pieces, Strips, Bobs and Wheels

SCO English Bull Necks

SCO English Buffalo

SCO English Polishing Ox Bends

Available direct or through your local jobber

SCO Importers

Sole United States Agents

SCO Importers

Stuart C. Olsen Company

WEST ROAD NORFOLK 1, CONN.

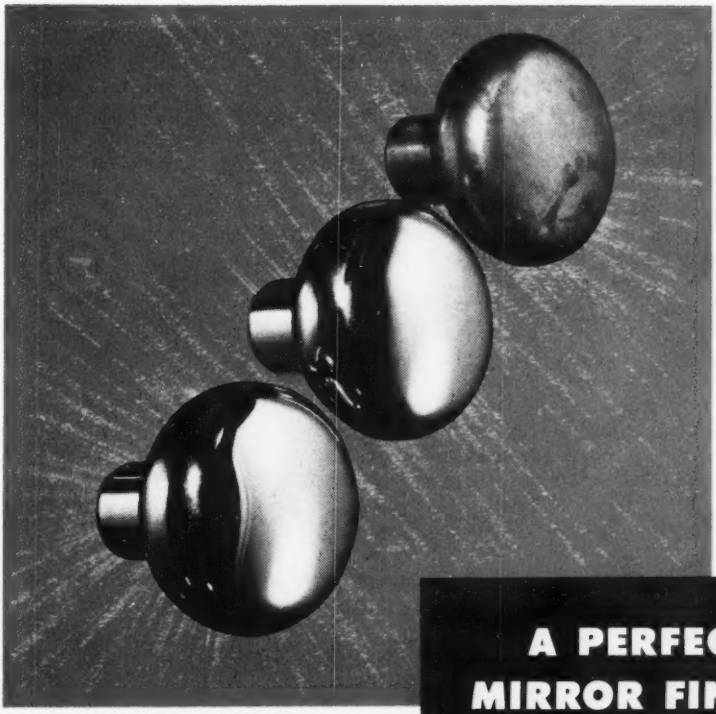

Chromate conversion coatings, of which there are many types on the market today, stem from a process which is simply a strong solution of sodium dichromate containing a small quantity of sulfuric acid. Zinc plated parts immersed for a few seconds in such a solution, cold rinsed and blown dry in an air blast, will be covered with a thin yellow film of a good corrosion resistant coating. Since the advent of this process, a new field of chromate conversion coatings has been opened. There are now processes which will produce mirror bright passive surfaces, colored conversion coatings like olive drab and black, coatings that can be dyed in a manner analogous to anodic coatings on aluminum, and even electrolytic conversion coatings. It is well to bear in mind that the most effective chromate conversion coating must be dried rapidly at low temperatures, because heat tends to destroy the continuity of the coating. A cold air blast is the best way. In actual large production this is somewhat slow and laborious as free running rinse water is quite cold. A quick dip of processed parts in water at 130-140 deg. F. (just enough to take the chill off) will be found helpful without noticeably harming the coating.

### Black Coatings on Zinc

Unlike copper, which can form varicolored compounds, most zinc compounds are white. The black coating formed on most zinc parts is a lower oxide of molybdenum formed by the reduction of molybdic acid. The reaction works best in slightly acid solutions in the presence of ammonium ions. A simple bath is composed of:

| | |
|---|---|
| Molybdic acid | 1 oz. |
| Ammonium chloride | 4 oz. |
| Water | 1 gal. |
| Temperature | 150-180 deg. F. |

There are certain proprietary blackening compounds on the market which are long lasting and give superior



ACTUAL PHOTOGRAPH OF VARIOUS BUFFING STAGES

# A PERFECT MIRROR FINISH WAS VITAL

## a Stevens L-V* report supplied the answer

A large manufacturer of brass hardware was doing most of its buffing operations by hand. That's because they could not get the desired mirror finish with automatic operations.

Stevens Customer Service laboratory solved their problem!

After extensive studies this manufacturer received a Stevens Laboratory-Verified test report. Better utilization of present automatic equipment and the proper Stevens buffs and buffing compositions were recommended. Today this company is turning out their products faster, more economically – and with a brighter finish than ever before!

Whether it's equipment, buffs, methods or compositions, why not let a Stevens L-V Test Report aid in solving your buffing problems? There's no obligation. *Laboratory-Verified

FREDERIC B. STEVENS

EVERYTHING FOR METAL FINISHING

BRANCHES: DETROIT • BUFFALO • CLEVELAND • NEW HAVEN • INDIANAPOLIS
IN CANADA: FREDERIC B. STEVENS OF CANADA, LTD., TORONTO • WINDSOR

coatings. The preliminary condition of the zinc plate here again is important. The zinc plating should be fresh and still wet from the last rinse, and again bright dipping with weak nitric should be avoided. If zinc plated parts must be dried and stored before processing, the parts should not be touched with bare hands. Any coating formed here will have a tendency to be non-adherent and powdery. It is best to process parts as soon as possible, because the dried surface becomes less active on aging. Dried parts if not too old can easily be activated just by vapor degreasing. The action here is obscure but it certainly helps in getting a good, even coating. If the surface is too old and crusted, chemical means may be used such as immersion for a few minutes in:

| | |
|---|---|
| Sodium cyanide | 1 oz. |
| Caustic soda | 1 oz. |
| Water | 1 gal. |
| Temperature | 140-160 deg. F. |

Another method is removal of the outer skin of metal by immersion in a weakly acidic chloride solution preferably either of muriatic acid or ammonium chloride. Thin, invisible, immersion coatings of cadmium or copper produced by treatment in cyanide solutions create local galvanic cells which aid in the formation of uniform black coatings. I have found the following bath to be helpful:

| | |
|---|---|
| Cadmium oxide | ¼ - 1 oz. |
| Sodium cyanide | 8-10 oz. |
| Water | 1 gal. |
| Temperature | Room |
| Time | A few seconds. |

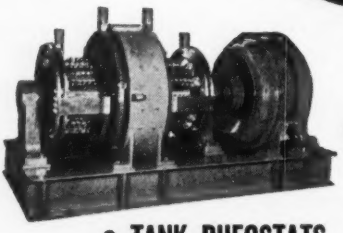
Spotty and uneven coatings can result in the processing of properly activated zinc, if the blackening rate is too fast. The part should show a slow change in color ranging from a light iridescence—to a dark greenish iridescence—to a black, taking place not in seconds but over a span of at least 2-3 minutes. Finally, uneven black coat-

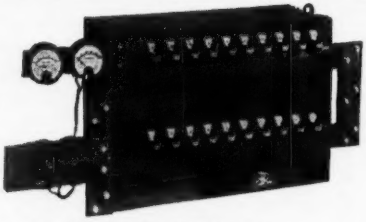

COLUMBIA

MOTOR GENERATORS

for

Electroplating, Anodizing
Electrocleaning, Electropolishing





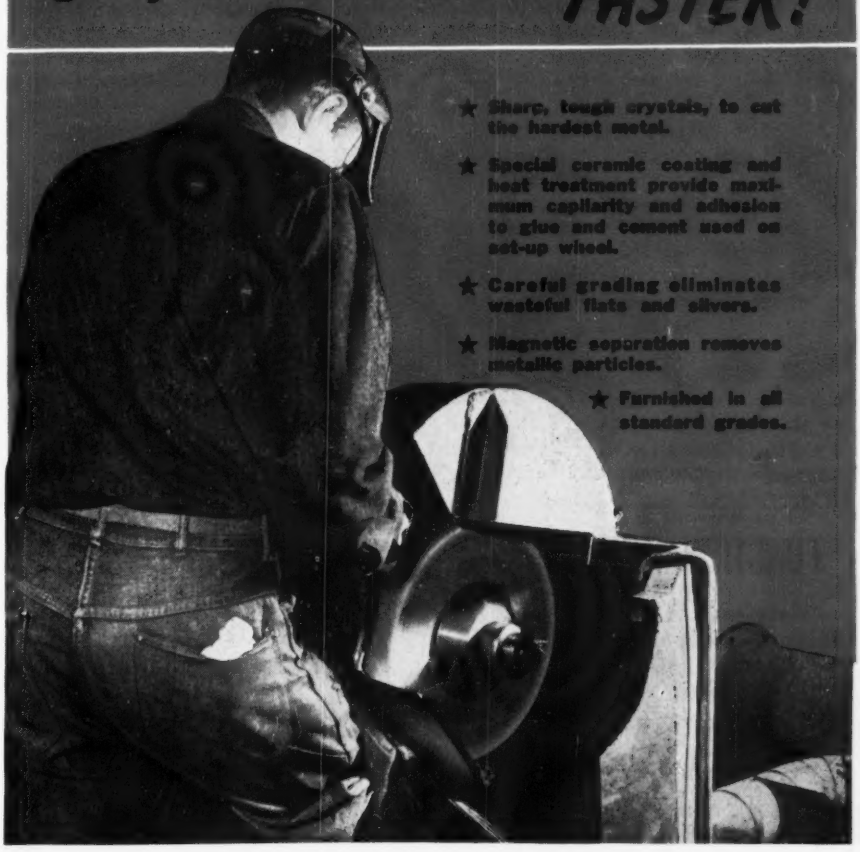
• TANK RHEOSTATS
• REVERSING SWITCHES
• TONG TEST AMMETERS

*Protected Territories Available to Qualified Sales Engineers*

COLUMBIA ELECTRIC MFG. CO.

4535 HAMILTON AVE. • CLEVELAND 14, OHIO

# Here's why EXOLON Abrasives give you better finishes – FASTER!


★ Sharp, tough crystals, to cut the hardest metal.
★ Special ceramic coating and heat treatment provide maximum capillarity and adhesion to glue and cement used on set-up wheel.
★ Careful grading eliminates wasteful flats and slivers.
★ Magnetic separation removes metallic particles.
★ Furnished in all standard grades.

You can't buy a better abrasive than EXOLON. Its hardness and uniformity guarantee the finest possible metal finishing job. You'll save on labor and production time by using the best. And the difference in the finished job will make you wonder why you ever used inferior, false-economy abrasives. Get the complete story today. Write EXOLON for full information.

THE **EXOLON** COMPANY
943 East Niagara St., Tonawanda, N. Y.

**Manufacturers of SILICON CARBIDE and ALUMINUM OXIDE ABRASIVES**

ings can occur as a result of pre-cleaning of the basis metal. The use of certain formulations of electro-cleaners may leave slight residues on the metal which are not visible on the plated part but make themselves known as dull black areas on the finished parts. If this is the case the cleaning process should be studied and revamped if required.

**Cadmium Plating**

Bright cadmium solutions have been standard in the industry for some time and it is hardly necessary to repeat the subject except in a general way from a practical standpoint. The basic cadmium solution is as follows:

Cadmium as cadmium oxide 2.5-5.0 oz.
Sodium cyanide (total)_____9-20 oz.
Water _____to make 1 gal.

The wide range of operating characteristics enables the plater to select the optimum concentration for his line of work. If he desires to plate complex shaped parts, the cadmium concentration should be kept on the low side and the cyanide on the high side to favor deposition in the recesses without overplating the more prominent areas. High cyanide will reduce the cathode efficiency, particularly at higher current densities. On the other hand simple parts may be plated rapidly at high current densities using a high metal concentration at relatively low cyanide concentrations. It may be mentioned here that many proprietary brightening agents now on the market fortunately have the same wide operating range and will give little cause for concern.

Cleaning and pickling requirements are more exacting than for zinc plating, since cadmium coatings will blister easily on improperly prepared metal. It may be mentioned at this point that absolute cleanliness of the base metal is mandatory for cadmium coatings that are to be soldered. This is important particularly in the electronics industry. I have seen attractive bright cadmium coatings which would not solder properly with a non-acid flux. An extensive study showed that a more vigorous pickling of the base improved the solderability to the required degree. There was no visible contamination on the surface but for some reason or the other, the added pickling was necessary. This result was supported by a supplementary alkaline de-rusting treatment test on similar parts, which was successful. This indicated possibly, that the contaminant might be some sort of a difficulty soluble oxide coating.

Cadmium coatings are somewhat analogous to zinc coatings as they can be phosphate coated, chemically blackened, and receive most types of chromate coatings.

---

*Adapted for publication in PRODUCTS FINISHING from a paper presented before the Annual Meeting of the Philadelphia Branch, A.E.S., November 22, 1952.*


**FUNCTIONAL FINISHES!!**

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity —

*Try Us!*

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

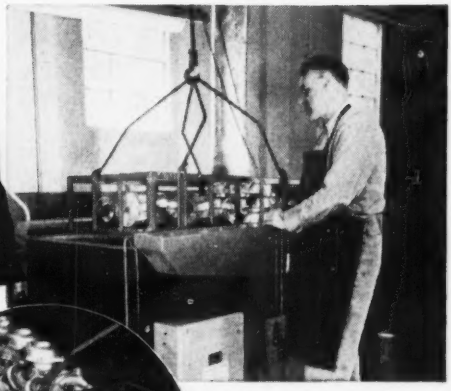
**The Varnish Products Co.**

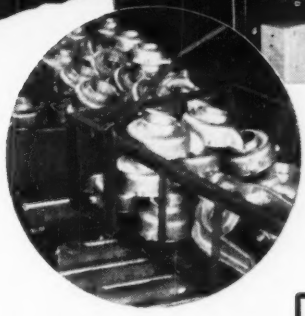
**5204 Harvard Avenue**
**Cleveland, Ohio**

ENGINEERED SERVICE

# PHILLIPS

POWER TOOL MANUFACTURER CLEANS CASTINGS, STAMPINGS, MACHINED PARTS, FASTER AND MORE THOROUGHLY WITH A PHILLIPS DEGREASER





*Above:* Metal parts are thoroughly cleaned in Phillips high efficiency Model 60 degreaser. Inset shows condition of parts *after* degreasing.

**Skilsaw reports improved cleaning before painting and assembly.**

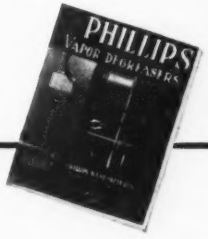
HERE is another case illustrating the high cleaning efficiency of Phillips degreasers. Skilsaw, Inc., Chicago, uses a Phillips Model 60 electric batch-type machine to clean both aluminum and iron castings, steel stampings, shafts and screw machine parts. These parts must be thoroughly cleaned before painting and assembly of the finished product. Among the types of soil removed are coolants, kerosene, drawing oils, and just plain shop dirt.

Skilsaw reports that the Phillips unit cleans their parts better, as well as 3 to 4 times faster than their former method. Thus production is speeded up and better control is assured over the quality of the finished product.

Check into the time and money you can save with Phillips Vapor Degreasing. Our representative will be glad to discuss your parts cleaning problem with you.

***SEND FOR YOUR COPY OF THIS NEW BULLETIN***

Describes and illustrates Phillips engineered metal cleaning equipment.

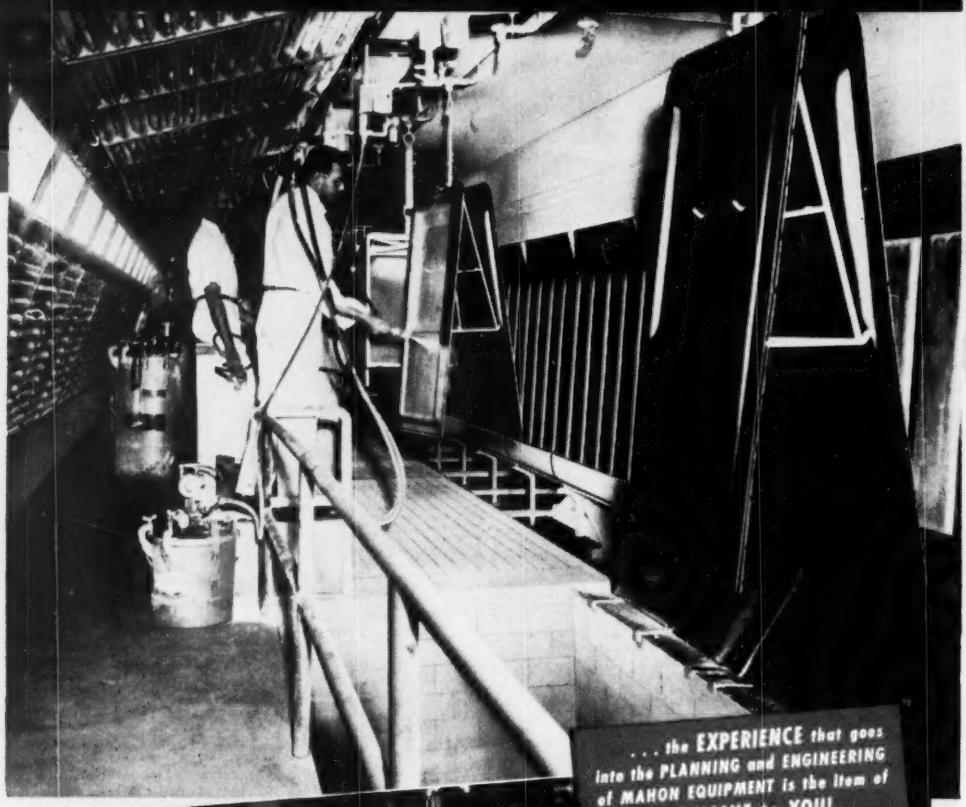



Phillips MANUFACTURING COMPANY

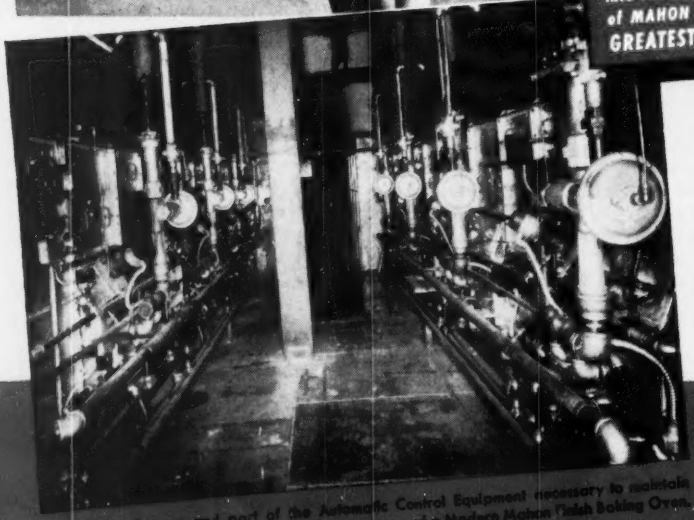
3457 TOUHY AVENUE • CHICAGO 45, ILLINOIS

ENGINEERED METAL CLEANING EQUIPMENT

# COMPLET



. . . the **EXPERIENCE** that goes into the **PLANNING** and **ENGINEERING** of **MAHON EQUIPMENT** is the item of **GREATEST VALUE** to **YOU!**



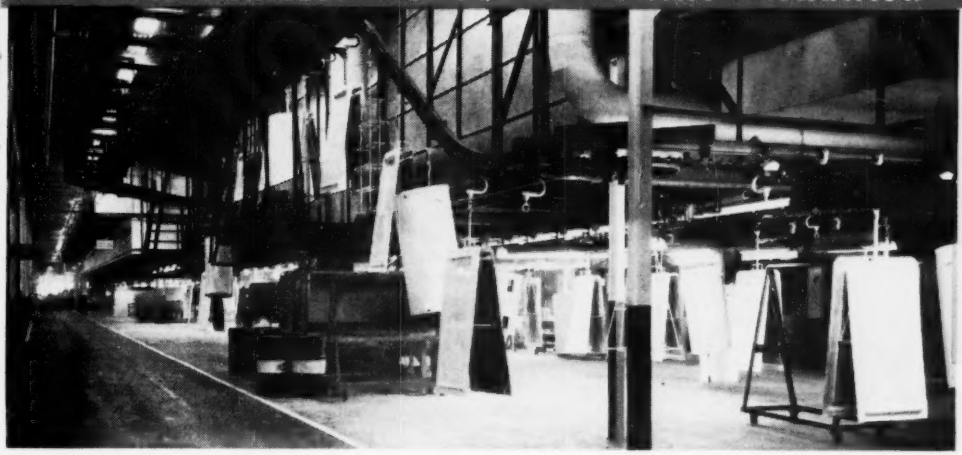
Gas Burners and part of the Automatic Control Equipment necessary to maintain prescribed temperature in the various stages of a Modern Mahon Finish Baking Oven.

Above at right you see a general view of this new Mahon Installation showing the Air Supply System located overhead in the foreground and bottom entrance Finish Baking Ovens located overhead in the background. Directly above is a view of the interior of a typical Mahon Hydro-Filter Spray Booth. Note the "Hydraire" Flood Sheet and "Microfusers" which permit perfect control of air flow in the working area of the spray booth.

M

# E Finishing SYSTEMS

## . . . for ENAMELS • LACQUER • PAINT • VARNISH



### *Modern MAHON EQUIPMENT Pays Dividends in FINER FINISH at Lower Cost, less Maintenance, and BETTER WORKING CONDITIONS!*

Production Finishing Equipment is constantly being improved . . . new developments such as the Mahon Fire-Jet solution heating units for cleaning and rust proofing equipment, better control of air flow in the working area of the Mahon Hydro-Filter Spray Booths, improved Flow-Coaters, automatic and conventional Dip Coaters, better automatic control of heat stages in Mahon Finish Baking Ovens, new Vacuum Booths, and many other improvements which are the result of constant research and development carried on by the Mahon Company in search of better methods which result in finer finishes at lower cost. The equipment illustrated here was recently installed in the plant of one of the world's largest home appliance manufacturers . . . it is ultramodern in every respect. If you are contemplating new finishing equipment, you will find Mahon engineers are better qualified to determine your equipment requirements and to plan and produce the most efficient production finishing equipment available today . . . equipment which will prove to be the most economical from a standpoint of maintenance and operating cost. Remember, Mahon has pioneered in this highly specialized field for over thirty years . . . remember, also, that more automobiles and more home appliances are finished in Mahon Finishing Systems than all other types combined. See Sweet's Plant Engineering File for further information, or write for Catalog A-653.

**THE R. C. MAHON COMPANY**

HOME OFFICE and PLANT, Detroit 34, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems—including Metal Cleaning and Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Hydro-Filter Spray Booths, Filtered Air Supply Systems, and Drying and Baking Ovens; Core Ovens, Heat Treating and Quenching Equipment for Aluminum and Magnesium and other units of Special Production Equipment.

# AHON

# Vacuum Impregnation of Castings Forms Base for High Quality Paint Finish

**Castings found difficult to finish with paint, varnish, lacquer, or enamel by reason of pores in the metal, may be impregnated with sodium silicate, vinyl lacquer, styrene, or phenolic resin by vacuum processing. The treatment fills the pores, so that a smooth paint finish can be produced, and also eliminates the possibility that corrosion may be initiated in unsealed pores and spread over the surface, causing failure of the finish.**

By JOHN STARR

VACUUM finishing is a term that has been used to describe a process whereby metal castings are now being impregnated and sealed with unusual efficiency by Northrop Aircraft workers in a new plant at Anaheim, Calif.

It consists briefly of placing machined and cleaned castings in a chamber, whence air can be evacuated prior to immersion of the casts in an organic finishing solution. The purpose of this is to increase the wetting action of the solution by removing the gaseous particles that would normally clog the metal pores when the casts are submerged. After the casts are submerged, air pressure is built up in the chamber to accelerate the penetrating action of the solution.

Impregnants currently used by Northrop include sodium silicate, vinyl lacquers, styrene, and phenolic resins. However, the vacuum process could be adapted to the use of many other finishing materials, if necessary.

### Use of Sodium Silicate

Aluminum alloy castings are vacuum impregnated with sodium silicate or water glass to meet the requirements of U. S. Army Specification 51-70-1A (Finish No. 24.01). This necessitates the preliminary cleaning and degreasing of the casts with Kelite T-131, Solvesso No. 2, Amsco A, or hydrogenated naphtha (first of which is an alkaline solution, heated to about 150 deg. F. prior to use). Some castings are also anodized before they are impregnated.

If the castings are stored for any length of time after they are cleaned and/or anodized, preheating is necessary to remove moisture particles from the metallic pores. This involves the use of a thermostatically-controlled oven, set for a temperature of about 250 deg. F., for one hour.

Preheated casts are allowed to cool to room temperature before they are placed in an impregnation chamber, since heat can affect the condition of the impregnant. Then all casts are arranged in the chamber so that their surfaces will be fully accessible to sodium silicate.

Next the cover of the impregnation chamber is locked in place, and a high-vacuum pump is used to reduce chamber pressure to at least 10 inches of mercury. The vacuum is held for at least 20 minutes, then the vacuum pump is turned off and a valve is actuated so that fluid sodium silicate will enter the impregnation tank (rising to a level of at least 6 inches above the castings).

Sodium silicate is considered suitable for use as a Class A impregnant if it has a minimum specific gravity of 1.38 at 20 deg. C., no more than a 0.10 per cent chloride content, a solids content of 1 per cent or less, a sodium oxide content of 8.60 per cent or more, a silica content of 28.50 per cent or more, and a ratio of sodium oxide to silica of 1:3.52.

As soon as the castings are fully submerged, the reservoir valve is turned off and the vacuum pump is turned on again to reduce pressure in the impregnating chamber to 10 inches of mercury. The latter pressure is maintained for five minutes, then the vacuum is released and the chamber is pressurized with clean dry air to about 45 p.s.i. for a period of at least 20 minutes.

Excess sodium silicate is returned to its reservoir without reducing the latter pressure, then all valves are closed and pressure in the chamber is reduced to the atmospheric level.

When removed from the impregnation chamber, the castings are allowed to drain thoroughly before they are taken to a baking oven, where their impregnant is solidified by three hours of heating at 212 deg. F.

### Use of Vinyl Lacquers

Copper bearing alloys are impregnated with Vinylite No. 2140 lacquer, comprising 50 per cent thinner by volume, to meet the requirements of the aforementioned Army specification for Finish No. 24.02. Such alloys include all cast materials comprising 5 per cent or more copper. They are cleaned, degreased, and sometimes anodized (aluminum alloys). Then they are dehydrated at a temperature of 250 deg. F. for an hour, cooled to about 100

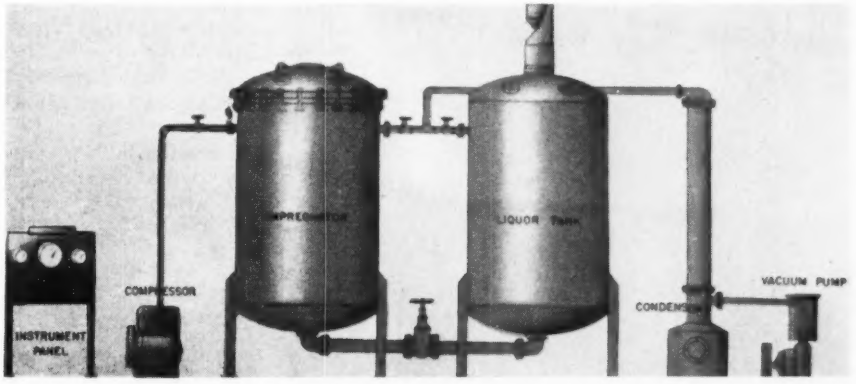



Fig. 1—Schematic representation, showing typical components of a vacuum impregnation unit.

deg. F., and loaded in the impregnation chamber.

Slightly-elevated temperatures are allowable in the subject circumstances because they enlarge the metal pores that must be impregnated and increase the fluidity of the thermoplastic impregnant.

When closed, the impregnation chamber is evacuated until a pressure of at least 28 inches of mercury prevails therein. This pressure is held for at least 20 minutes, then the vacuum pump is turned off and a reservoir valve is opened so that vinyl lacquer will enter the chamber—rising to a level six or more inches above the castings. Then the reservoir valve is closed and chamber pressure is again reduced to 28 inches of mercury for five minutes.

Next, the vacuum is released and the chamber is pressurized with clean dry air to 60 p.s.i. for at least 20 minutes. Then, after excess lacquer is returned to its reservoir under pressure, chamber pressure is reduced to the atmospheric level and castings are removed from the chamber.

Following a short draining interval, the castings are immersed in thinner for a few seconds to remove excess quantities of impregnant and allowed to dry. Compressed air is frequently used to accelerate the drying of the casts, after which the impregnated parts are baked for one hour at 200 deg. F.

Lacquer exudations can sometimes be observed on casts that have been baked, but these can usually be removed without difficulty by further cleaning the casts with volatile solvents.

**Use of Styrene**

Monomeric styrene solutions are used in place of vinyl lacquer impregnants where aluminum alloys with less than 5 per cent copper require a 24.03 Finish. Prior to impregnation, the cast metals are cleaned with the aforementioned solutions and solvents; also, as a rule, they are anodized.

Preheating at a temperature of 250 deg. F. for an hour removes moisture from the casts, after which the latter are cooled to about 100 deg. F. and loaded in the impregnation chamber.

Pressure in the chamber is next reduced to 28 inches of mercury

Fig. 2—A view of the vacuum chambers used to impregnate metal castings with organic coating materials in the Northrop Aircraft plant at Anaheim, California.

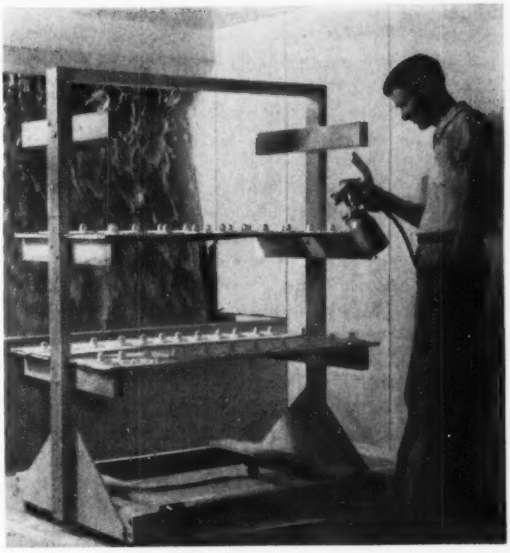


Fig. 3—Following vacuum impregnation, castings are finished by spray painting methods.

and held for 20 minutes before the vacuum pump is turned off. Then the casts are completely submerged in liquid styrene and chamber pressure is again reduced to 28 inches of mercury for five minutes.

When the vacuum is released, 60 p.s.i. pressure is built up on the impregnant in the chamber and held for at least 20 minutes, after which excess styrene is returned to its reservoir before the pressure in the chamber is reduced to the atmospheric level.

Removed from the impregnation chamber, the casts are thoroughly drained and cleaned by further immersion in the Kelite T-131 alkaline solution for several seconds. A rinse in clean water at a temperature of about 120 deg. F. halts the action of the alkaline solution on the casts, after which the latter are dried and baked at a temperature of 265 deg. F. for two hours. Baking is done under a pressure of about 90 p.s.i. in an inert gaseous atmosphere of nitrogen or carbon dioxide, if necessary to avoid volatilizing the styrene.

Resin exudations on baked castings are removed by immersing the casts for 30 to 60 seconds in a stripper solution—active ingredients of which include 14.5 parts sodium metasilicate (pentahydrate), 71.5 parts disodium phosphate, and 14 parts Triton X-30 (a surface active agent). The stripper solution is prepared by dispersing 7 per cent active ingredients in 93 per cent water by weight, and it is used at 180 to 190 deg. F.

Any film remaining on a cast after is has been immersed in a stripper solution and rinsed for 3 or 4 minutes in tap water can be removed by a light polishing operation.

**Use of Phenolic Resin**

Phenol - formaldehyde impregnants of the type now made by Western Sealant Company are preferred by Northrop where government specifications do not specify the use of other materials, due to the superior properties of resinous thermosets. Prior to the use of a phenolic impregnant, casts are cleaned with the aforementioned alkaline solution and vapor-degreased by means of trichlorethylene; further, they are usually (but not necessarily) anodized (aluminum castings).

In many circumstances, casts can be adequately dehydrated for phenolic impregnation by preheating to about 225 deg. F. for only 30 minutes. Then they are cooled to room temperature and loaded in the impregnation chamber, which is next evacuated to 27

inches of mercury pressure for 15 minutes.

Phenolic impregnants are stored in a refrigerated reservoir so that their usefulness will not be limited by premature polymerization or solidification; and, prior to use, a specified quantity of phenolic resin is transferred to a room-temperature container so that it can be mixed with a catalyst or hardening agent. The catalyst comprises a small quantity of acid crystals (⅛ of 1 per cent of the weight of the resin) dissolved in monomeric styrene to facilitate mixing operations.

When properly catalyzed, the phenolic impregnant is transferred to a reservoir from which air can be evacuated for a pressure of less than 29 inches of mercury, prior to the immersion of casts in an adjacent pressure tank.

After casts in the impregnation tank are fully immersed in the catalyzed solution, chamber pressures of 27 inches of mercury or less are maintained for five minutes. Then the vacuum is released and the chamber is pressurized with clean dry air to 100 p.s.i. for at least 30 minutes.

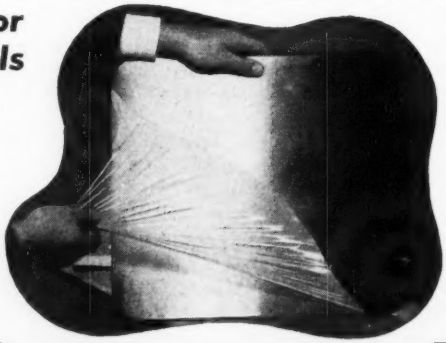
Excess resin is removed from the impregnation chamber before the latter pressure is reduced for the removal of casts, which are subsequently drained and taken to a cleaning tank. The latter tank contains trichlorethylene, and the castings are immersed therein for 1 to 20 seconds to remove all resinous materials from the metallic surfaces.

Next, the casts are thoroughly dried and conveyed to an oven for an hour of heating at 225 deg. F. At the end of the latter interval, the casts are inspected for exudations — which can then be removed simply by wiping the metal surfaces with a clean rag.

Further heating (for three hours at


**A Strippable Plastic for the Protection of Metals**

Striplastic is a protective plastic applied by spraying, dipping or rolling. It is used on stainless steels, high polished metal sheets, sheets in cold working or drawing, tools, dies and parts, and on sheets or metal parts before packaging. It protects against scratching and abrasion, and against rust. Also available as a booth coat protection.



THE STRIPLASTIC COMPANY
10828 QUEBEC AVE.
CLEVELAND 6, OHIO

Among many advantages, it is nontoxic, possesses great tensile strength and is easily stripped off in one piece. Write for complete information on this new strippable plastic.

# The one and only answer to your exact finishing requirements may be . . .

# Randolph HOT SPRAY LACQUERS

Many manufacturers are getting astonishing results—quicker application, fewer coats, speedier production and remarkable savings in costs—by using Randolph's *specially-formulated* Hot Spray Lacquers. Appearance, durability, sales appeal of the product are often improved. Are you sure that your own operation won't benefit in every way from this process?

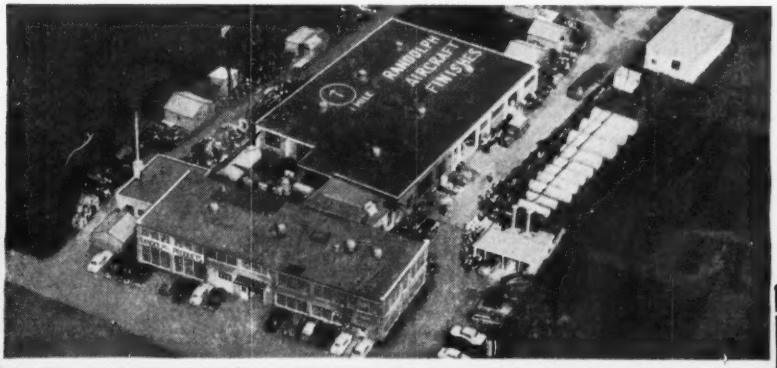
To help you find out, we are launching a customer service program adapted to your individual needs. Simply write us—and we will send a team of experienced technicians to study your methods, demonstrate hot spray techniques and advise as to their desirability in your case.

Randolph Hot Spray Lacquers are now proving the preferable finish for a wide variety of products. Yours may be among them. You can make sure by writing us today!

**RANDOLPH PRODUCTS COMPANY**

Research Department

CARLSTADT, NEW JERSEY




DOPES · LACQUERS · ENAMELS · THINNERS

**THIS BOOKLET**

**HELPS SOLVE YOUR FILTRATION PROBLEMS**

**Your Titeflex® Filter Booklet** is ready. Send for it now. Read about Titeflex Filters . . . their simple, fool-proof construction . . . simplicity of operation . . . efficiency . . . continuous economy in use and maintenance.

**Your Titeflex Engineer** is available, too, to consult with you on your filter problems. He'll help analyze your needs . . . select just the right equipment . . . give you the plain facts on costs.

Send the coupon today for your free copy of the Titeflex Filter Booklet—or for advice from a Titeflex Engineer. No obligation.

**Businesses served by Titeflex Filters include . . .**

| | | |
|---|---|---|
| Chemical | Wine | Water |
| Electroplating | Beverages | Food Processing |
| Soap | Distilling | Edible Oils |
| Cosmetics | Dry Cleaning | Food Extracts |
| Pharmaceuticals | Paints & Lacquers | Machine Tool |

*Let Our Family of Products Help Yours*

**Titeflex**

TITEFLEX, INC.
531 Frelinghuysen Ave.
Newark 5, N. J.

MAIL COUPON TODAY

☐ Please send me a copy of your Free Booklet about Titeflex Filters.

☐ We need the advice of a Titeflex Filtration Engineer . . . without obligation on our part.

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____


225 deg. F. and 30 minutes at 300 deg. F.) solidifies the phenolic impregnant remaining in the pores of the casts.

All castings that have been vacuum processed by Northrop are given a final finish coating with pneumatic spray equipment. This coating may comprise any material that is chemically compatible with the aforementioned impregnants.

---

Copper, sandwiched between surfaces of stainless steel, is being used as a cooling plate in soft drink dispensers, according to American Cladmetals Company. The copper makes possible rapid heat transper and high cooling efficiency, while the stainless steel provides the sanitary surfaces necessary. The steel contains no nickel alloy.

---

Without the development of new alloys capable of resisting elevated temperatures, the jet airplane, like the gas turbine, would not have been practical. Most of these "super alloys" contain appreciable precentages of the element nickel along with other alloying materials.

---

Nickel-clad steel plate consists of open hearth steel with a layer of nickel on one or both sides. It is made by pressure welding, in a rolling mill, of the nickel cladding material and the steel slab at a temperature of about 2,200 deg. Fahrenheit. The resultant material combines the corrosion resistance of nickel with the mechanical properties, heat conductivity and thermal expansion of steel. Nickel-clad steel is used where solid nickel is not required, such as in tank cars, water storage tanks, soap kettles and dye tanks. These steels are also being used to replace pure nickel in many other applications.

# Reflecting

The mirror of one's mind is often our fondest desire

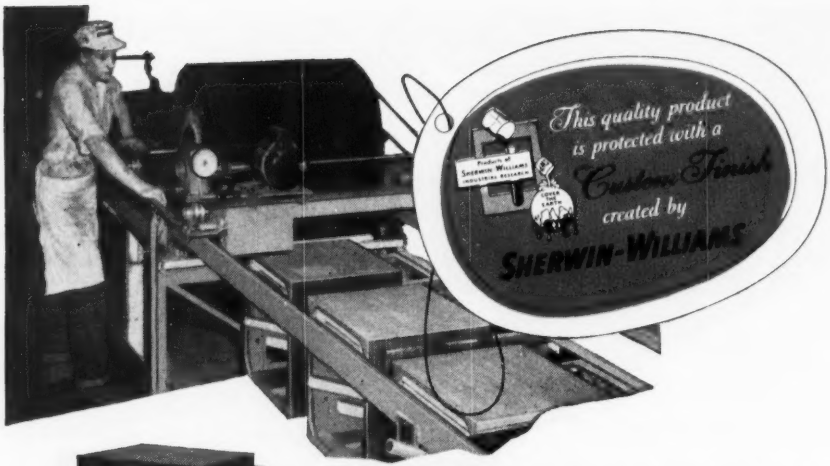
*Reflect on this ...*

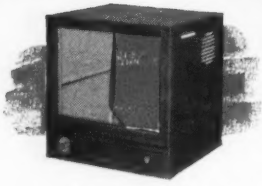
In producing a mirror finish for bright plated or non-plated work, that *reflects* maximum depth—*SIEFEN'S BUFFING NU-SPRA-GLU* and *SIEFEN'S TECHNICIANS* have the know-how for you. Why not investigate these superior products and service? We act promptly on all inquiries.

*TRY US.*

J. J. Siefen CO.

5643 LAUDERDALE · DETROIT 9, MICH.



# "WOOD" FINISH ON METAL

## SPEEDS TV CABINET OUTPUT!

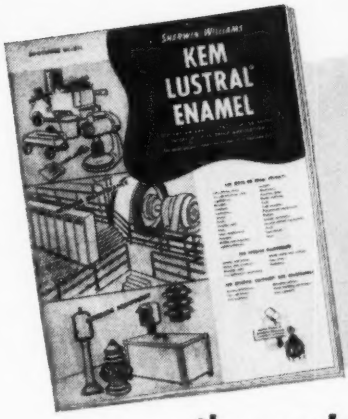
TV cabinets with the luxury look of finest grained wood . . . accomplished with time and money-saving advantages inherent with metal finishing! It's a production achievement of Doehler Metal Furniture Co., New York, New York—leading maker of quality metal and wood furniture—in the manufacture of TV cabinets for a large producer of electrical equipment.

"Wood graining" is done through a unique, semi-automatic process that minimizes finishing time, yet produces an accurate appearance of expensive wood cabinets. Cabinets are first coated with a specially formulated Sherwin-Williams metal primer, which provides the proper base color. Then, a perfectly simulated wood grain pattern is imprinted onto the primer, followed by a Sherwin-Williams mar-resistant lacquer. The soft, hand-rubbed lustre of this final finish gives depth to the pattern . . . adds to the appeal of the finished cabinets.

May we help you, too? Whatever your requirements, you can get qualified help through your Sherwin-Williams Industrial Representative. Ask him, too, about Sherwin-Williams identification aids. There's no better way to take advantage of an outstanding product feature—the finish—than by identifying it with the Sherwin-Williams name and trade mark. For details, write The Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio.

**SHERWIN-WILLIAMS**

**INDUSTRIAL FINISHES**




AIR-DRY OR BAKE

SPRAY, DIP OR BRUSH

FOR PRODUCT FINISHING AND INDUSTRIAL MAINTENANCE

# Get these facts on KEM LUSTRAL®

## ...the modern multi-purpose enamel!

Here's the versatile finishing material industrial users asked for—KEM LUSTRAL—*one* top-quality enamel that gives you all these advantages . . . and more—

—will air-dry or bake

—may be brushed, sprayed or dipped

—has outstanding durability, gloss retention and weather resistance—interior or exterior

—does double-duty as a product finish or for maintenance painting

—gives lasting protection for wood or metal.

KEM LUSTRAL is one of a complete line of industrial quality product finishes available through Sherwin-Williams Branches in all principal cities. Consult your classified telephone directory for location of Branch nearest you. Ask for a copy of KEM LUSTRAL Brochure KL-511. Or write The Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio.

*Services of trained industrial finish specialists available in your area through nearest Branch*

**SHERWIN-WILLIAMS**

INDUSTRIAL FINISHES

# Spotlighting FINISHING Progress

## Mica, Used as an Extender, Improves Salt Fog Resistance of Paint

STUDIES conducted in the paint laboratories of the College of Engineering, New York University, have shown that the use of the platy extender, wet ground mica, within certain limits in an alkyd paint formulation improves the salt fog resistance of the paint. The results of the tests were given by Dr. Max Kronstein, George P. MacNiece and Marion M. Ward in "Paint and Varnish Production," as a part of a general report on the effects of platy pigments in paint systems. It was found that the optimum amount of extender to be used differs with the nature of the other pigmentation. In the case of reactive white lead paints, the optimum was found to be between 20 and 25 per cent mica. In the case of lithopone, containing 28.5 per cent zinc sulfide, the optimum mica content was lower, or around 12.5 per cent of the total pigment used.

Paint films containing too much mica showed an increase in porosity and a shortened life of the test specimen. Dr. Kronstein and co-workers attributed this to the possibility that with a high concentration of platy matter, some particles will fail to orient themselves parallel to the paint film and may even cause a greater moisture penetration to the steel base than would occur without the use of a platy extender.

In order to obtain information on the influ-

*to page 62*→

By DR. ALLEN G. GRAY

A Monthly Digest of Current Technical Progress Indicating Significant Trends and Developments in the Finishing Industry

AMERICAN CHEMICAL PAINT COMPANY

AMBLER CHEMICALS ACP PROCESSES PENNA.

# Technical Service Data Sheet

## Subject: HOW TO MAKE PAINT STICK TO GALVANIZED IRON WITH LITHOFORM®

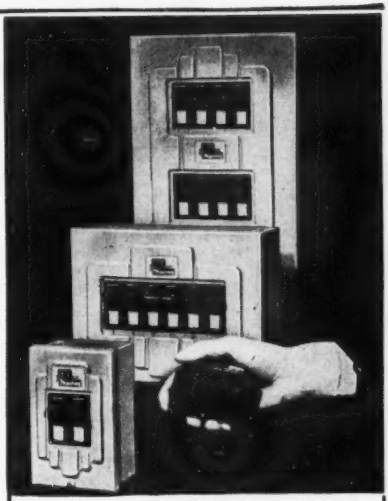
### INTRODUCTION

"Lithoform" forms a dense, zinc phosphate coating on zinc, cadmium, and galvanized surfaces — including Galvanneal, cadmium plated steel, zinc plated steel, zinc base alloys, and zinc base die castings. The "Lithoform" coating, which is non-metallic and inactive, retards reaction between alkaline metal oxide and the paint film. Peeling and loss of adhesion are thus greatly retarded on painted Lithorized zinc and cadmium.

### ADVANTAGES OF "LITHOFORM"

"Lithoform" forms a durable bond for paint. It is economical. It eliminates frequent repainting. It protects both the paint finish and the metal underneath. "Lithoform" meets these Government Finish Specifications:

QQ-P-416
RR-C-82
MIL-E-917A (Ships)
JAN-F-495
AN-F-20
U.S.N. Appendix 6



*Photograph by courtesy of Murray Manufacturing Corp.*

Murray Circuit Protectors are fully magnetic and provide maximum protection for both domestic and industrial wiring. Housings are of galvanized iron which is Spray Lithorized for long paint life.

### THE LITHORIZING PROCESS

"Lithoform" can be applied by brushing or spraying the work with simple hand equipment, by dipping it in tanks, or by spraying it in industrial power washers.

*Brush.* Galvanized bay windows, cornices, rain gutters, hardware, building siding, truck panels, and farm equipment are typical of the many surfaces that are treated effectively with Brush "Lithoform".

*Dip.* This grade is used for coating cleaned surfaces of such typical products as cabinets, refrigeration condensers, etc., immersed in heated solutions in tanks.

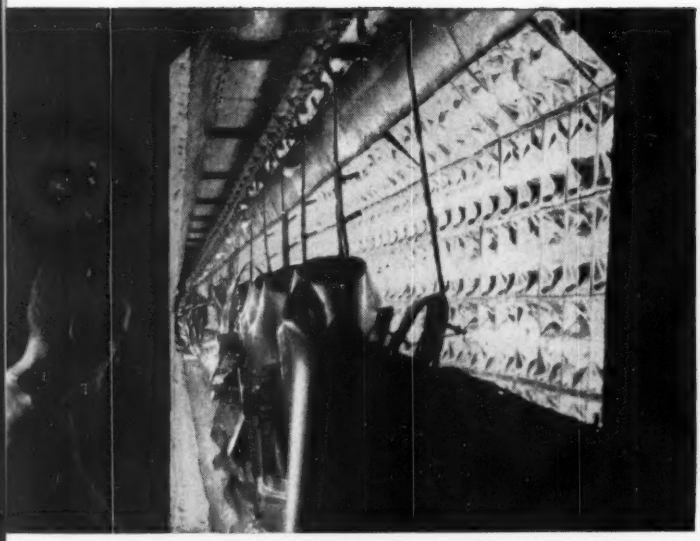
*Spray.* The spray process is the most logical one with which to coat sheets, coiled strip or duplicate products best processed on a conveyor.

CHEMICALS ACP PROCESSES

WRITE FOR FURTHER INFORMATION ON "LITHOFORM" AND ON YOUR OWN METAL PROTECTION PROBLEMS.

CHEMICALS ACP PROCESSES

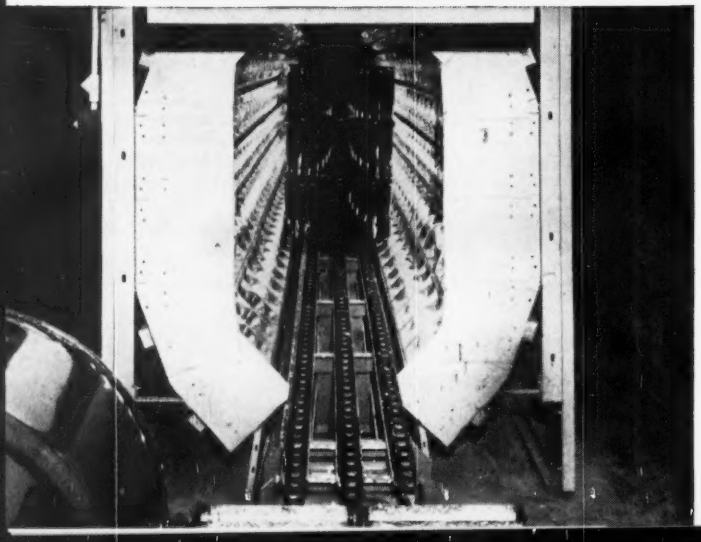
# PLANTS BY THE THOUSANDS *Switch to*



## TYPICAL EXAMPLES OF FOSTORIA ADVANTAGES

Studebaker, Canada has 7 Fostoria ovens used for Bonderite, prime and finish coat drying of bodies and parts. Time is about half formerly needed. Maintenance reduced 75% over older methods. Finishes improved by penetration of heat through paint film. Cleanliness has practically eliminated rejects and reprocessing.

## MOST EFFICIENT OF ALL FINISH BAKING OVENS



This Fostoria oven at Canadian Oil, Ltd. bakes yellow and white finish on oil and grease drums in 4 minutes. Production of 200-100 lb. grease drums and 100-45 gal. oil drums has been obtained. Starting section of oven has 500 W lamps. Balance of oven has 500 W lamps top and bottom rows and 250 W lamps in remainder.

# FOSTORIA OVENS

## For FINEST FINISH QUALITY

## Lowest "Per Piece" Production Cost

### UNEQUALLED LOW-COST ADVANTAGES

**1 LOWEST OPERATING COST**
Puts heat into the product — not into oven walls. Uses less fuel. Gold plated interior reduces heat loss to 2%.

**2 REQUIRES LESS FLOOR SPACE**
Shorter Cycles — most production for oven size. May be ceiling mounted:

**3 FASTEST PRODUCTION**
Fastest means of heat transfer. No warm-up required — no shut-off lag. Heat levels instantly changeable.

**4 LOWEST MAINTENANCE COST**
Clean operation — no combustion by-products. Lowest source replacement cost.

**5 COMFORTABLE WORKING CONDITIONS**
No room ventilation problem.

**6 COMPETITIVE INITIAL COST**
Comparable to any quality-built oven.

### UNEQUALLED QUALITY ADVANTAGES

**1 SMOOTH "FLOW-OUT" OF PAINT**
Uniformity of heat distribution and rapidity of solvent removal give smooth, even paint film.

**2 THOROUGH UNIFORM BAKE**
Near Infra-red energy penetrates paint film with constant uniform temperature.

**3 CLEAN FINISH**
No by-product of combustion — no condensation of solvent volatiles to mar finish.

**4 SAFETY CONTROLLED**
Instant heat shut-off with conveyor stoppage. No over-baking by shut-off lag.

Write for brochure of technical facts on Infra-red and case histories of many Fostoria oven installations. Tell us about your particular problem and we will include data directly applicable to your operations.

**FOSTORIA PUTS HEAT INTO THE PRODUCT — NOT IN THE OVEN WALLS**

INFRA-RED fostoria OVENS

*Send for Complete Facts*

**THE FOSTORIA PRESSED STEEL CORP.**
**FOSTORIA, OHIO, Dept. IP**

Please send information on Infra-red ovens for

.....

Name .....

Company .....

Street .....

City ..... State .....

ence on moisture resistance of certain ratios of mica, as part of one specific paint material, under uniform formulation, application, curing, and exposure, a series of three tests was carried out in New York University's paint laboratories. In Test Series I, a basic paint formulation having an alkyd resin binder and white lead carbonate pigmentation was varied by substituting subsequently certain percentages of white lead with wet ground mica (325 mesh). The percentages used were all increments of 12.5 per cent from zero to one hundred.

In Test Series II, the investigation was made with a narrower range of substitutions. Based on the results of Series I, the ratio of mica content was held within the limits of zero and 30 per cent of the pigment content, using increments of 5 per cent in the successive variations of the basic alkyd-white lead formulation. Test Series III was conducted using the mica extender together with a composite zinc sulfide-barium sulfate pigment. The base paint used in the tests consisted of 40 parts white lead carbonate and 60 parts of short-oil alkyd resin solution with 50 per cent solids (Rezyl Resin 330-5, 39 per cent P.A.A., American Cyanamid Co.). For better application toluene, 11.1 parts, was added as a thinner.

The paints were applied with a film applicator on clean, vapor degreased steel panels. The wet film thickness was 10 mils. In general, the dry film thickness varied between 2.5 to 3 mils. The panels were baked for 1 hour at 220 deg. F. and aged for 5 days at 120 deg. F. before exposure. For comparative tests of the various paint specimens the panels were exposed in the salt fog chamber. Here a 10 per cent sodium chloride solution for salt fog was maintained at 95 deg. F. Within the ratios of 12.5 and 25 per cent

*Prescription* **for protection**

When you select Ply products to protect your employees from the hazards of industrial processing, you have the satisfaction of knowing you have purchased the very best!

For over 20 years Ply products have been used and proven successful by the nation's leading industrial plants. If you're not already using Ply products, it's time to get the facts now!

PLY-GARB clothing is now available in plastic woven materials that assure complete protection, long wear and comfort.

PLY-GLOVS are plastic coated and will protect your workers hands from water, acid, caustics, petroleum—and all chemicals except M.E.K. solvents.

*Write today for literature and samples*

**THE MILBURN COMPANY, Detroit 7, Mich.**

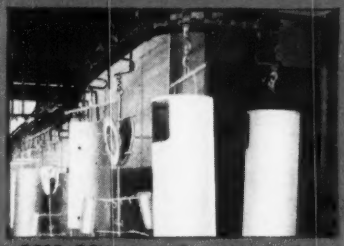
RIDES THE FINISHING LINE

with

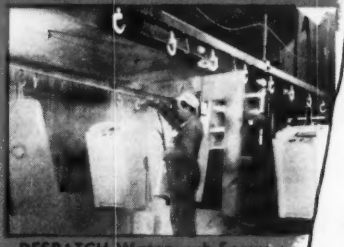
DESPATCH

*Engineered Equipment*

Prime and Finish Coat DESPATCH Conveyorized Ovens mounted on plant roof to conserve space.



DESPATCH monorail conveyorized Finish Bake Oven.



DESPATCH Waterwash Spray Booth on a Charger Cabinet line.

Complete Finishing Systems designed, fabricated and installed by DESPATCH are engineered to meet your specific finishing problems. Your every requirement is given full consideration by competent DESPATCH engineers with the ultimate result that you have a system that will produce top quality finishes on your products at the lowest possible operating and maintenance costs.

We can tell you of hundreds of plants, some in your locality, that have proved this. From start to finish, dollar for dollar, DESPATCH engineered equipment performs better!

For more information—write to Dept. C

DESPATCH OVEN COMPANY

Minneapolis Office: 619 S. E. 8th St.

Chicago Office: 4554 N. Broadway

Sales Offices in all Principal Cities

**One Unit or a Complete Finishing System**

mica the salt fog resistance of the paint was improved. Further increase in the mica content decreased the protective value of the paint films under identical test conditions.

In Test Series II, a detailed investigation was made using mica content of 5, 10, 15, 20, 25, and 30 per cent of the pigment. The base paint used in this series consisted of 40 parts sublimed white lead and 60 parts of a medium oil alkyd resin solution with 50 per cent solids (Rezyl Resin 807-1, 30 per cent P.A.A., American Cyanamide Co.). For application toluene, (5 parts), was added as a thinner. In the modifications above, the total amount of pigment remained unchanged, but in each variation, a portion of the sublimed white lead was replaced by an equal amount of wet ground mica (325 mesh). The paints were applied as previously described; then with a sharp blade, cross marks were cut through the applied film to the metal base and the panels were hung in the salt fog chamber.

The results of the tests showed that there was very little difference in the behavior of the paint without any mica and with 5 or 10 per cent mica, as far as moisture or salt fog was concerned. The best results were shown in the samples with 20-25 per cent mica and 75-80 per cent white lead. Dr. Kronstein and co-workers pointed out that successful use of 25 per cent mica (325 mesh) in salt fog exposure tests of lead pigmented paint agrees with a published report showing results of tests on red lead primers exposed for 55 months in the marine atmosphere of the Marine Basin, Sayville, L. I. In these tests very good results were obtained with a red lead-zinc oxide-zinc chromate-mica pigmentation containing 25 per cent mica and using an alkyd-phenolic varnish binder.

* * *

## Chromic Acid Rinse Benefits Phosphate Coatings

AS a part of a series of studies on phosphate coatings as a basis for painting steel, the British Standards Institution has investigated the effect of chromic acid rinses on corrosion resistance of such coatings. In tests on two industrial phosphate coatings, the addition of small concentrations of chromic acid to the rinsing water used after phosphatizing had a beneficial effect on the protective properties of the coating. The optimum concentration of chromic acid in the rinse water was 0.1 to 0.2 per cent.

According to details of the tests described by the phosphate coatings panel of B.S.I. in "The Journal of the Iron and Steel Institute" (British) the evaluation was conducted on eight sets each of several specimens which were phosphatized by either of two processes followed by a chromic acid rinse. The specimens were cut from 20-gauge

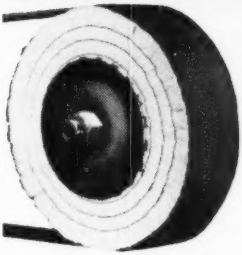
Powerful, direct-connected (no gears), 3450 r.p.m., 100-120 v AC air-cooled motor. All sealed ball-bearing construction. Die-cast aluminum housing, polished. All-position handles. In hand weight only 5 lbs. Insulated with ground wire for wet as well as dry sanding or rubbing. Available accessories—deep contour pads, surface plates, felts, etc. Takes any sheet abrasives—3 covers 4½" x 6½" from standard 9" x 11" sheet.

A time saving quality tool priced so every worker can have one.

*Write for Circular*

SpeedWay MANUFACTURING CO.
1895 So. 52nd Ave., Cicero 50, Ill

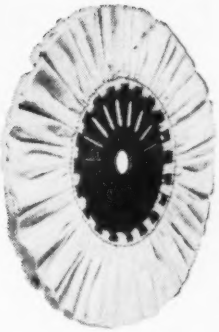
# A FEW OF THE MANY FORMAX PRODUCTS



## STYLE C-20 CONTACT WHEELS

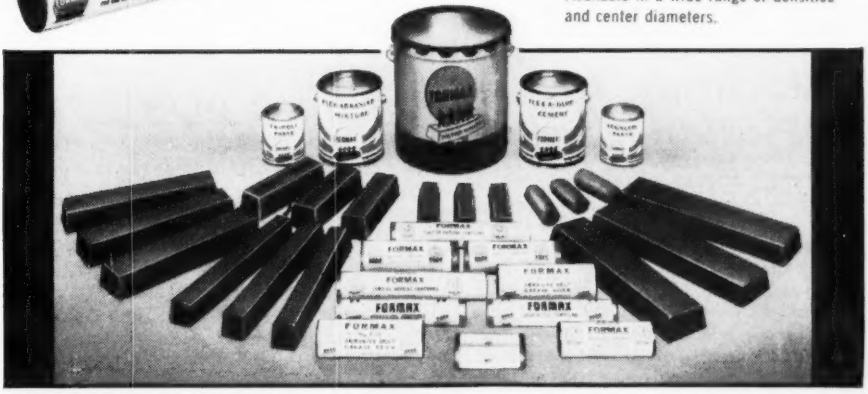
***and F-26 Belt Lubricant***

A C-20 flexible Contact Wheel will form itself to the shape of the work and permit the abrasive felt to polish contoured surfaces and F-26 Abrasive Belt Lubricant will increase belt life by preventing loading and glazing. Produces finer, smoother and brighter surfaces through lubrication.



## ZIPPO BUFFS

These famous long-wearing buffs run cool under all buffing conditions. Constructed of high count bias-cut cloth or sisal mounted on safe steel centers. Available in a wide range of densities and center diameters.




A complete line of buffing compounds in bar form as well as in liquid form for brush or spray application. Also Flex-A-Glu polishing wheel cements.

Our Laboratory and Sales Engineering staff would welcome the opportunity to be of help in solving your finishing problems.

***Send for descriptive literature***

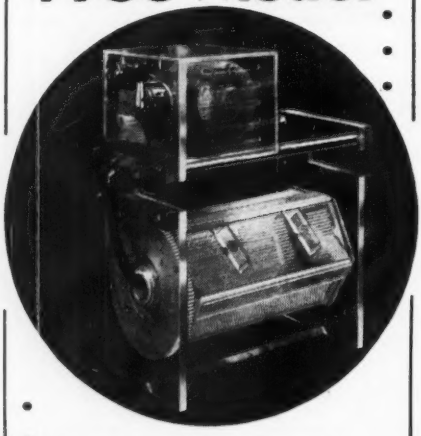
# FORMAX MFG. CORP.

**DETROIT 7, MICHIGAN**

**"THE FOUR McALEERS"**

**MANUFACTURED IN CANADA BY JOHN GALLOWAY LTD., KITCHENER, ONT.**

**It's New --**
the
**1953 Model**



**Portable Lucite Plating Barrel**

THE STUTZ PORTABLE PLATING BARREL is designed and constructed of High Temperature Lucite to provide continuous processing of piece parts through the operation of Alkali Cleaning, Water Rinsing, Acid Treatment and Plating. Progression through these operations is made by manual handling or if necessary with the assist of an overhead traveling hoist. The STUTZ PORTABLE PLATING BARREL is made in two sizes with cylinders having inside dimensions of 6" x 12" and 8" x 18". Standard perforations are 3/32" or larger. Smaller openings can be furnished as required. All gears are ½" High Temperative Lucite. Gear bearings are permanently lubricated. New heavy duty motor. Operating temperature up to 185° F.

***Write for our new illustrated literature TODAY!***

*Manufactured by*

**GEO. A. STUTZ Mfg. Co.**

**1647 Carroll Avenue, Chicago 12, Ill.**


autobody sheet steel. For each process, the same procedure was followed throughout except that the concentration of chromic acid in the rinsing solution was varied for each set of specimens as follows: nil; 0.05, 0.1, 0.2, 0.5, 1.0, 2.0, and 5 per cent. In the first process A, the specimens were immersed in the bath for six minutes, at 140 deg. F., and in the second process B, for 10 minutes at 180 deg. F. After phosphatizing, both specimens were dipped in water at 150-160 deg. F., and were rinsed in chromic acid solution at 160 deg. F. All specimens were dried in an oven at 270-290 deg. F. Both phosphatizing solutions used in the tests were of the zinc phosphate type.

Specimens were subjected to laboratory corrosion tests and to outdoor exposure. Some of the corrosion tests were made on specimens to which a single coat of stoving paint (about 0.5 mil thick) was applied. The A.R.E. Laboratory corrosion tests consisted of spraying the specimens once a day with sea water, so as to cover them with a layer of discrete droplets. Evaporation of the droplets between sprayings is minimized by storing the specimens over water in an enclosed space. The results of a 7-day A.R.E. test on the bare phosphate coatings are given in Table I. In both phosphatizing processes, the addition of chromic acid to the rinse water up to a certain limiting concentration improved the corrosion resistance of the coating but greater concentrations proved injurious. The coating produced in process B was more resistant than the coating from process A, possibly because the coating weight of the former was about four times greater.

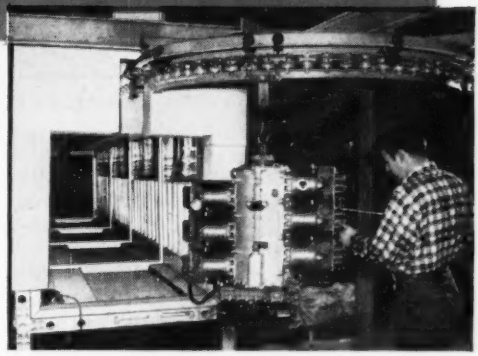
Table I also shows the results of outdoor exposure tests on phosphatized specimens that had been painted. The performance of the protective scheme improved with increasing additions of chromic acid to the rinsing water, up to a limiting concentration. Beyond

# "Superior Finishes, Less Drying Time *with* JENSEN PAN·L·HEAT!"

## AIRCOOLED MOTORS, INC. TELLS HOW IT MEETS AIRCRAFT FINISHING STANDARDS

"SUPREME QUALITY is the primary consideration in every operation connected with the manufacture of aircraft engines," says this leading manufacturer. *"Jensen Pan-L-Heat has given it to us. Our engines are now coming out with superior quality finishes . . . in addition, drying time has been substantially reduced."*

Solving problems of all types —like meeting unusually high standards — is a Jensen specialty. Your particular heating problem will get prompt attention from Jensen engineers. Representatives are located in all principal cities.



This 28-ft., 100-KW Pan-L-Heat oven is used by Aircooled Motors, Inc. to bake grey enamel on air-cooled aircraft engines. Conveyor was also supplied by Jensen—operates at a speed of one foot per minute. Engines, weighing over 350 lbs. each, are mounted on four-foot centers.

**JENSEN PAN·L·HEAT:**

- Increases pay load realization by improving oven efficiency.
- Uses electric heat more effectively at low cost.
- Improves quality and uniformity of production.
- Gives superior results with shorter heating cycles—at lower energy consumption.

• Get *All* the Facts—Write for Jensen Pan-L-Heat Brochure (on your letterhead, please).

Jensen SPECIALTIES, INC.

PAN-L-HEAT Ovens

ADVANCE HEATING DIV.

9331 Freeland Ave., Detroit 28, Michigan

**Table I**

EFFECT OF CHROMIC ACID RINSES ON PHOSPHATE COATED STEEL

| Chromic Acid in Rinsing Water—% | Bare Phosphatized Specimens—A.R.E. Test—Wt. of Steel Corroded, mg. | | Outdoor Exposure—Phosphatized and Painted Specimens—Duration of Test to Failure—Yr. | |
|---|---|---|---|---|
| | Phosphatizing Process A | Phosphatizing Process B | Phosphatizing Process A | Phosphatizing Process B |
| Nil | 572 | 83 | 0.3 | 0.5 |
| 0.05 | 613 | 22 | 0.5 | 0.5 |
| 0.1 | 467 | 47 | 0.6 | 1.0 |
| 0.2 | 198 | 94 | 0.6 | 1.0 |
| 0.5 | 198 | 126 | 0.6 | 0.8 |
| 1.0 | 15 | 157 | 0.6 | 0.5 |
| 2.0 | 40 | 122 | 0.6 | 0.1 |
| 5.0 | 226 | 276 | 0.2 | 0.0 |

*Adapted from data in "The Journal of the Iron and Steel Institute" (British)*

this point performance deteriorated and the strongest rinses used (2 or 5 per cent) proved harmful. The investigators reported that after the point of failure had been passed, further breakdown was not greatly affected by whether or not a dilute chromic acid rinse had been used. While the permissible limiting concentration of chromic acid probably varies for different phosphatizing processes, even dilute rinse solutions with concentrations as low as 0.05 per cent may have a beneficial effect.

* * *

## Electrostatic Atomization of Organic Finishes

ONE of the methods of applying organic coatings is spray finishing by replacing the air pressure with an electrostatic field. The new process uses no air for atomization. The object itself attracts the paint in the quantity required.

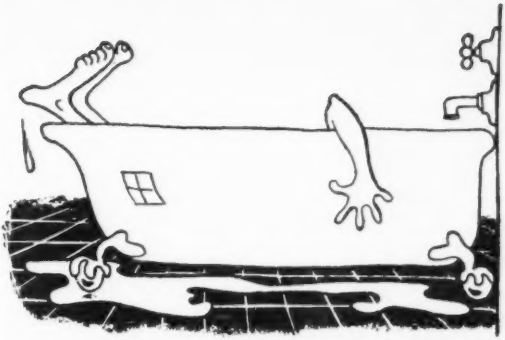
Electrostatic atomization is a recent development of the Ransburg Electro-Coating Corporation. In the new process, termed the Ransburg No. 2 Electro-Spray process, the article to be coated is carried by the conveyor past a radically new type spray gun. The gun consists essentially of a hollow, cone-shaped head. Coating material is metered at a constant rate to the apex of the head, and rotation of the head spreads the material uniformly over its inner surface, causing the material to flow evenly to the outer edge. A source of electrostatic high potential, having one terminal grounded and its other terminal conected to the head, creates a strong electrostatic field between the head and the article to be coated, which is grounded by the conveyor. The force of this field transforms the material into a spray of fine, charged particles and creates an attraction that pulls the spray particles to the grounded article. This accounts for complete electrostatic deposition.

### Advantages Of New Method

Since no air is used there is no overspray. It is claimed that the efficiency is in the high nineties, and in some instances exceeds 99 per cent. Production line experience has shown that electrostatic atomization may spray 25 to 75 per cent more pieces per gallon of finishing material than other finishing systems, according to data made available by Ransburg Electro-Coating

# Murder in the Bath

*— but Monel's not the victim*



The Acid Brothers — Muriatic-Hydrochloric-Sulphuric — committed this foul deed. But when your pickling equipment is made of Monel® you've got good insurance against them. Monel is tough and highly resistant to corrosion caused by hot pickling solutions. And it will give you years of trouble-free service.

It is advisable to place equipment orders with your supplier well in advance of scheduled use. Distributors of Inco Nickel Alloys can supply the latest information on availability from warehouse and mill.

And write today for your free copy of "A Good Start to A Better Finish."

**THE INTERNATIONAL NICKEL COMPANY, INC.**

*67 Wall Street, New York 5, N. Y.*

INCO

**Monel** PICKLING EQUIPMENT

*extra life*
*extra capacity*
*extra safety*

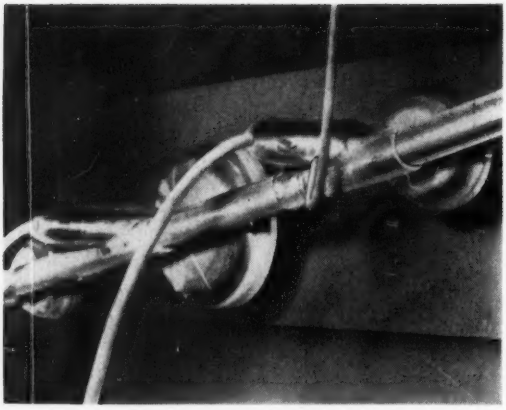


Fig. 1—Electrostatic Atomization at Barler Metal Products, Inc., Goshen, Ind.
*(Photo courtesy Ransburg Electro-Coating Corp., Indianapolis, Ind.)*

Corp. Various sizes and shapes of parts can be finished. The hollow cone shaped heads shown in Fig. 1 are the spray guns of electrostatic atomization. In this case, one triple head is being used at Barler Metal Products, Inc., Goshen, Ind., to coat Army and Navy clothes lockers with olive drab enamel, one coat on each side. Panels coated are 24 inches wide, traveling at 35 feet per minute, conveyorized by an overhead monorail on 84-inch centers. A similar setup coats the reverse side. Production is 7,200 sq. ft. per hour.

Other advantages claimed for electrostatic atomization are the elimination of spray booths and the positive duplication of results by removal of dependence upon the skill of the operator. When the shape of the article or the method of conveying does not permit complete deposition on the part, a backboard is employed as a simulated article. Ventilation of the area for control of solvent vapor is all that is required. Figure 2 shows a conveyorized setup at Geuder, Paeschke and Frey Company, Milwaukee, Wisconsin, for spray painting metal ironing boards. It is reported that a 25 per cent reduction in paint costs was achieved in this operation when the Ransburg Electro-Spray Process, using spray guns was replaced by electrostatic atomization.

**Spraying In Electrostatic Field**

If the article can be conveyorized, either by hanging on hooks or by the use of a table-top type of conveyor, electrostatic atomization can very likely be used. However, there are cases

*to page 74→*

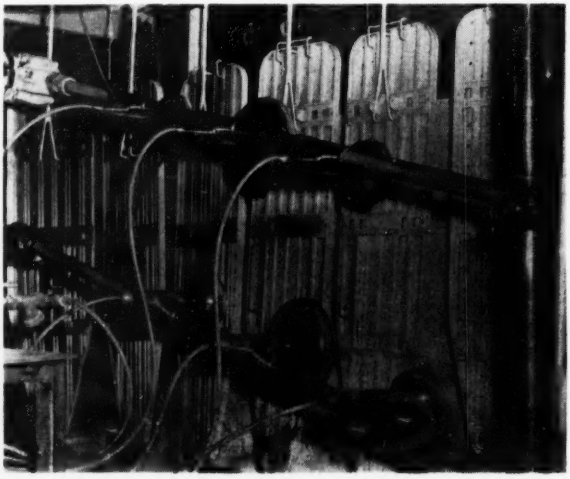


Fig. 2—Geuder, Paeschke & Frey Company, Milwaukee, uses Electrostatic Atomization for spray painting metal ironing boards.
*(Photo courtesy Ransburg Electro-Coating Corp., Indianapolis, Ind.)*

WITH

# LIQUID ENVELOPE

PEELABLE PROTECTIVE PLASTIC FILM

Keep your booths firesafe this labor-saving way:

1. **Scrape down and spray on "LIQUID ENVELOPE" with your regular spray-equipment.**
2. **When overspray accumulates, break "LIQUID ENVELOPE" skin and peel off in great, big pieces. Re-spray.**

That's all there is to it! You save labor . . . promote fire safety . . . get better illumination. Costs less than outmoded hand-scraping or grease-papering. Order 5 gallon Test-Sample at the Drum Lot price. Hundreds of smart operators have!

**BETTER FINISHES & COATINGS, INC.**

**268 Doremus Ave., Newark 5, N. J. • 122 E. 7th St., Los Angeles 14, Calif.**

---

**DISTRIBUTED BY**

Aviation Lubricants Co., San Diego, Calif.

General Spray Equipment Co., Boston, Mass.

Bay State Spray Equipment Co., Springfield, Mass.

Lea Manufacturing Co., Waterbury, Conn.

Edgcomb Steel of New England, Milford, Conn.

Kellermann Paint Co., New York, New York

Grapek Paint Co., Newark, N. J.

H. J. Gettemuller Co., Inc., Baltimore, Md.

R. W. Renton Co., Cleveland, Ohio, Indianapolis, Ind.

Supplee-Biddle-Steltz Company, Philadelphia, Pa.

Dean & Barry Co., Columbus, Ohio

Vic Miner Co., Toledo, Ohio

Abrasive & Supply Co., Detroit, Mich.

Melson Industrial Supply Corp., Grand Rapids, Mich.

O'Donohue Sales Co., Milwaukee, Wisconsin

Paints & Lacquers, Inc., Chicago, Illinois

Tanner & Co., Indianapolis, Ind.

Metal Goods Corp., St. Louis and North Kansas City, Mo.; Dallas and Houston, Texas; Denver, Colo.; New Orleans, La.; Tulsa, Oklahoma.

Hubbard & Stau, Los Angeles, Calif.

The Plastic Paper Co., Los Angeles, Calif.

C & H Supply Co., Seattle, Wash.

Hugh Russel & Sons, Ltd., Montreal and Toronto, Canada

presenting
the new exclusive
H-VW-M rectifier
...and only one knob control!
PLATEMANSHIP
Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

Yes, gentlemen, *less* than 5% ripple—and you know that means more uniform deposits. This exclusive new H-VW-M Rectifier also has dual input for either 220 or 440 volts. That's right, single knob control instead of several—but that single knob controls 22 points of on-load switching!

And that *oversize transformer* is another typical H-VW-M "extra"—operates continuously without exceeding a 25°C. temperature rise . . . *plenty of reserve capacity*. The acid and alkali-resistant coating on both the transformer and the selenium stacks is real assurance of dependable, long life. There's *increased plate area*, too—and easily replaceable Fiberglass dust-blocks to filter incoming air. And instead of an ordinary contactor, there's a standard starter to guarantee AC line-overload protection with no-voltage release.

These Rectifiers—*made* by H-VW-M—have a smooth, easy-to-clean, durable, grey, hammer-tone finish and are the most complete line in the industry. They're available with either self-contained or remote control, in a full range of sizes from 50 to 10,000 ampere units in all desired voltages. And by comparison, *they cost less per unit than any other rectifiers made!*

Superior, lower-cost rectifiers are just one of the many results of H-VW-M's constant progress in electroplating and polishing development for more than eighty years. It's a continuous policy, best summed up in H-VW-M Platemanship . . . your working guarantee of the best that industry has to offer—not only in rectifiers—but in every phase of plating and polishing.

H-VW-M

HANSON-VAN WINKLE-MUNNING COMPANY, MATAWAN, N. J.
*PLANTS AT:* MATAWAN, N. J. • ANDERSON, INDIANA
*SALES OFFICES:* ANDERSON • BOSTON • CHICAGO • CLEVELAND
DAYTON • DETROIT • GRAND RAPIDS • LOS ANGELES • MATAWAN
MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH • ROCHESTER
SPRINGFIELD (MASS.) • STRATFORD (CONN.) • UTICA

INDUSTRY'S WORKSHOP FOR THE

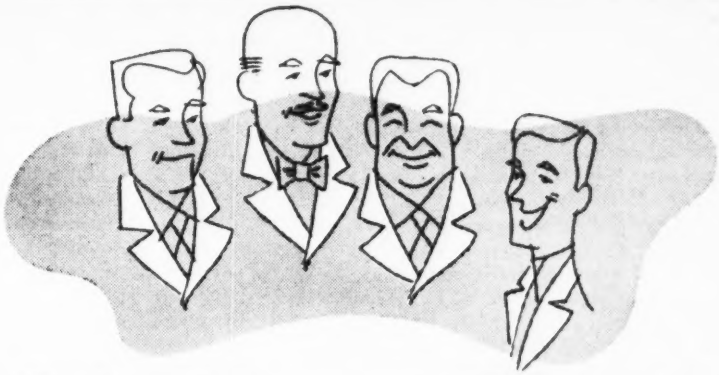
Did you say less than 5% ripple?
look at the size of that transformer!

where the first electrostatic spraying system, which is based on conventional spraying in an electrostatic field, may still be the better method. This process using conventional automatic spray guns is in wide use on production finishing lines in factories throughout this country and abroad.

When this method is used the part is generally hung from or supported by a conveyor and is carried, while thus supported, into the spray booth or spray zone. In the spray zone the objects are surrounded by an electrostatic field maintained by a suitable source connected between the item and a set of electrodes appropriately positioned along the conveyor. Coating material atomized into this field by automatic guns becomes ionized to the same polarity as the electrodes and is attracted to the object under the action of the field. The part as it moves along the conveyor between the electrodes gradually collects its full coating. The coating material not attracted to and deposited upon one part becomes coating material for those which follow. The small amount of coating material which escapes the electrostatic precipitating force, together with the evaporating solvent fumes, is exhausted in the usual manner. The part, after receiving its coating, is taken from the spray zone to drying or baking zone.

Increased efficiency of finish application is often obtained by combining mechanical rotation on the conveyor with electrostatic spray. Radio tubes, auto air filters, water heater jackets, electric motors, chairs, light fixtures, bathroom scale housings, water pumps, stoker parts, and other types of cylindrical containers are finished using electrostatic spray with mechanical rotation. A manufacturer of business machines has found that electrostatic spray methods give consistently high

America's Largest Line of
DRUM AND BARREL HANDLING EQUIPMENT FOR QUALITY, PRICE & SERVICE
No. 40 $15.90
No. 41 $4.00
No. 44 $36.20
No. 10 $20.70
No. 44 Drum Truck
MORSE MANUFACTURING CO., INC.
762 West Manlius St.
East Syracuse, N. Y.



# All chemists wear white coats!

Unlikely and unimportant but even if they look alike there's an important difference between them. KLEM chemists have dealt with almost every conceivable problem in their field. Their extensive experience enables them to more readily comprehend plant situations than ordinary chemists. The KLEM laboratory, equipped with the finest technological equipment for duplicating exact plant conditions and procedures, enables them to determine the correct answer to tough problems.

Let us help eliminate your bottlenecks, assist you as we have others in establishing profitable production schedules.

Representatives in most industrial areas.

## KLEM PRODUCT of the MONTH

### MINIT KOTE

Cleans, neutralizes, phosphatizes in 60 seconds. Frees metal surfaces from all traces of oil and dirt. Deposits light, uniform, phosphate coating for better adhesion of paint to ferrous metals and aluminum. Write for details.

### 3 OF 20 STANDARD KLEM PRODUCTS

**KLEM STRIPPER No. 73**—Heavy duty hot stripper for paint and enamels, rinses easily, eliminates hand scrubbing.

**WATER WASH COMPOUND No. 203**—Stops corrosion, keeps lines clean, prevents adhesion of paint to water curtain. Excellent for recovery.

**RUST-SOL No. 124**—Concentrated phosphoric acid surface conditioner. Removes oil and rust. Provides slight etch to promote adhesion of paint. Meets USA 3-213, TAC-ES431 and MIL-C-10578.

KLEM Chemicals Inc.

quality results in applying a wrinkle finish. In this case, effective coverage of a variety of different parts is accomplished by a rack and pinion arrangement within the booths which rotates the work as it passes through the spraying zone.

A producer of vacuum cleaners has found that electrostatic spraying will handle a diversity of parts on a single conveyor line. Every part of their production is electrostatically sprayed with a single field grid setup. Their use of a multiple rack for the small parts, where the individual pieces are placed around the periphery of an imaginary vertical cylinder is the principal contributing factor to the success of this single setup. The vertical cylindrical shape was chosen because the largest parts requiring spraying are of this shape. The parts, or rack of parts, are rotated slowly while being sprayed.

## Sanding Paint Test Panels Accelerates Rusting

SANDING of test panels has been found to have an accelerating effect on rusting of the panel after painting. Tests conducted by Sub-committee VII of ASTM Committee D-1, and reported by Thomas Rice have indicated that paint test panels should not be sanded or abraded, either partially or totally. In water immersion tests, blisters developed more rapidly on unsanded areas than on sanded, but the chief difference was the size of the blisters. Blisters were larger on the unsanded areas and, conversely, rusting was greater on sanded areas. The same results were produced on panels subjected to a 20 per cent salt water immersion test.

Panels prepared for the comparison of sanded versus unsanded surfaces were solvent cleaned (dipped and


NEWCOMB-DETROIT

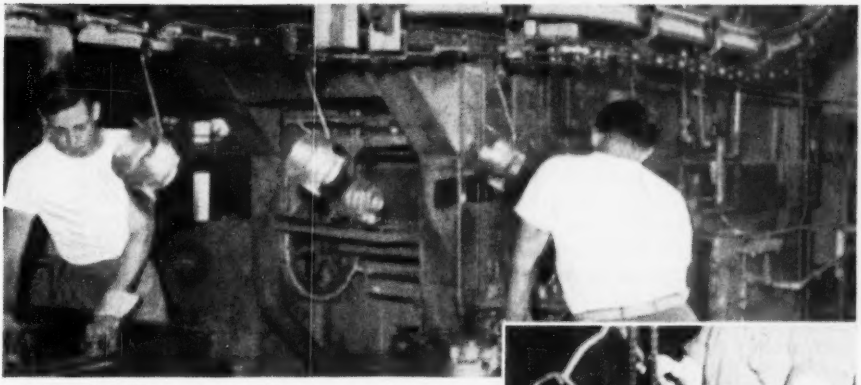
PIONEERS IN ENGINEERING, MANUFACTURE AND INSTALLATION OF

INDUSTRIAL OVENS
SPRAY BOOTHS
PARTS WASHERS
DUST COLLECTORS
AIR SYSTEMS

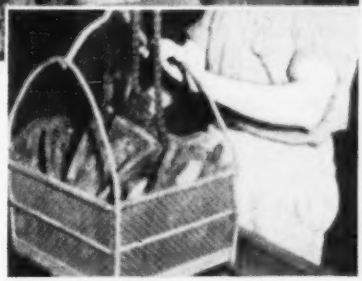
ESTABLISHED 1912
DETROIT DIVISION – GRAND RAPIDS DIVISION –
NEWCOMB INDUSTRIES LTD., WINDSOR DIVISION

For Bulletins and Quotations, Wire, Write or Call—
NEWCOMB-DETROIT
5761 Russell St.,
Detroit 11, Mich.
TR 3-2100

THE SOLVENT DESIGNED FOR MODERN VAPOR DEGREASING



**CONVEYORIZED.** "Triclene" D cleans refrigerator motor parts speedily and economically on a production line basis.



**MANUALLY OPERATED.** Castings will emerge clean, warm and dry from this small basket degreaser—instantly ready for assembly or further fabrication.

DU PONT

"TRICLENE" D

(TRICHLORETHYLENE)

**speeds conveyor and manual operations**

You can't buy a better solvent for modern vapor degreasing than "Triclene" D. Whatever your present degreasing requirements are, rugged "Triclene" D assures you perfect solvent performance. That's because "Triclene" D has been carefully developed over the past twenty years—ever since Du Pont pioneered synthetic solvents for vapor degreasing—and is specifically designed to meet today's varied cleaning tasks.

Stable and pure "Triclene" D gives excellent results in high-speed degreasing operations—even those involving removal of the newer, chemically active lubricants. Its narrow boiling range permits easy solvent recovery from sludge for efficient re-use. And to help keep your *entire* metal cleaning operation at peak efficiency, Du Pont field men will gladly give you the benefit of their technical experience.

**THIS VALUABLE INFORMATION IS YOURS—FREE**

You'll find complete information on the operation and maintenance of vapor degreasing equipment in these booklets. And interesting, up-to-date case histories about degreasing units in operation throughout the metal field are presented in our publication, "MODERN METAL FINISHING." You can receive this wealth of information by checking the appropriate boxes in the coupon below and returning it to us.

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Dept., Wilmington 98, Del.

Please send me more information on vapor degreasing and "Triclene" D. I am interested in receiving the literature checked below.

- ☐ **Free booklets on vapor degreasing**
- ☐ **Free publication "MODERN METAL FINISHING"**

**(Please add my name to the mailing list)**

*Name*_____ *Position*_____

*Firm*_____

*Address*_____

*City*_____ *State*_____

DU PONT

first in solvents for

VAPOR DEGREASING

DU PONT BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

scrubbed in naphtha) to remove excess oil and then the lower half of each panel was totally sanded and the upper half spot sanded on five diamond-shaped areas, ½-inch square. The partially sanded panels were then cleaned by a solvent wipe procedure, painted and tested. The paint coating consisted of one spray coat of synthetic, rust-inhibiting primer conforming to U. S. Army Specification AXS-750, which is an alkyd resin, zinc chromate-iron oxide pigmented primer. This was followed by one spray coat of synthetic olive drab lusterless enamel, conforming to U. S. Army Specification AXS-752. The total film thickness was 1.5 to 2.0 mils.

After being tested for six days in 20 per cent salt spray at the Rock Island Arsenal Laboratory, the panels were inspected, stripped, and inspected again. The increased rust on the sanded areas was readily apparent.

Pangborn Corporation, Hagerstown, Md., has announced the availability of a 12-page, two color **Bulletin No. 223** on the Blastmaster Rotoblast. Showing the "GN" Barrel, the bulletin illustrates the eight exclusive construction features that make this machine especially attractive to the foundry and metal finishing fields. One of its many features shown is a steel mesh door—the first really abrasive-tight door ever placed on the market.

This door consists of woven metal construction laminated with a rubber back to protect it from flying abrasive. Its side edges have rollers which travel in a mechanical labyrinth. The door moves up and down like a window curtain, easily operated by a crank which winds or unwinds the roller. It is held in any position by a ratchet and brake on the roller.

In addition, other pages of the bulletin show how production savings may be realized by taking advantage of the blastmaster, designed specifically for the newer abrasives, to batch blast castings, forgings and heat treated parts. Detailed dimensions and specifications, for both the 6 and 12 cu. ft. models, clearly show how this barrel can fit into a cleaning room operation.

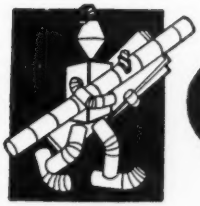
Even the softest of Felt Wheels offers a durability difficult to match with any other of the commonly used fabric materials. Not only is felt tough and resistant to wear but when wear does occur, the wheel can be re-faced or re-contoured.

The net result of this durability is longer wheel life—longer *useful* wheel life. Try a Paramount Brand Felt Wheel of the proper hardness competitively. Check it against other wheels. We are confident it will show you greater earnings as measured by finished articles per wheel life.

**BACON FELT COMPANY**
(Founded 1825)
447 West Water Street Taunton, Massachusetts
"America's Oldest Felt Manufacturer" "Felt Does It Better"
Your Supply House can Furnish Bacon PARAMOUNT BRAND FELT DISCS & WHEELS

# ELECTRICAL OVENS

## LARGE or SMALL

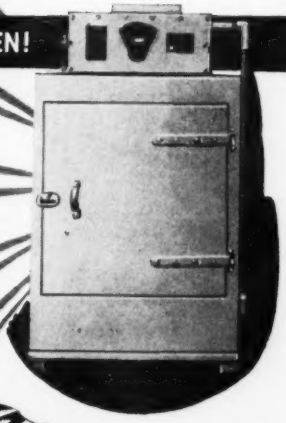


- Rack
  - Horizontal
    - Vertical
- Drawer
  - Portable
    - Conveyor

or

Tunnel Drying Types

**YOU CAN STAKE YOUR REPUTATION ON THIS OVEN!**



Keep a sharp eye on finishing methods for you can stake your reputation on this oven. Excessive heat has been the "cost" of many jobs. Each Young & Bertke oven is designed for its particular job with temperature controls, circulating air fans and other special equipment for perfect finishing results.

Transformer and Armature coils for radio, television and electric motors are some of the many smaller items to which these ovens are specially adapted. A complete line for results in any industry—for any product—with value beyond expectation. UP GOES PRODUCTION—down go costs.

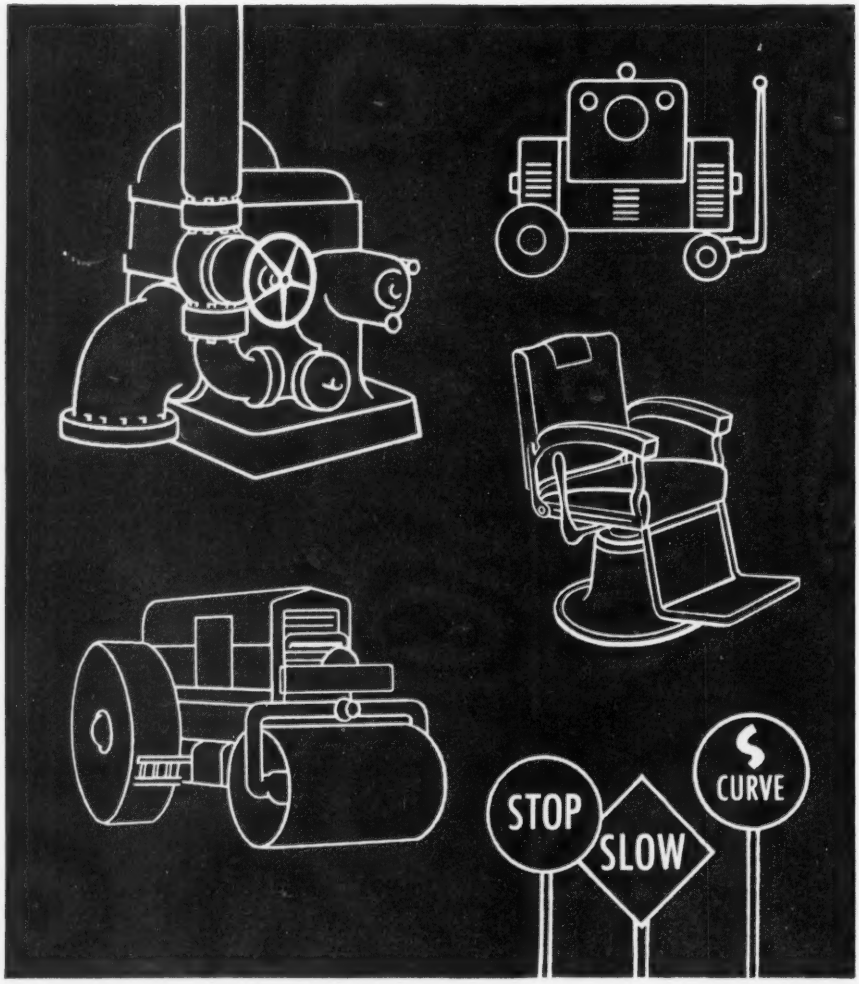
- For Bonding
- Drying or Baking
- Dehydrating
- Heat Treating
- Preheating

The YOUNG & BERTKE Co.

OVENS • SPRAY BOOTHS • DUST and FUME CONTROL

2291 BUCK ST. • CINCINNATI (14), OHIO

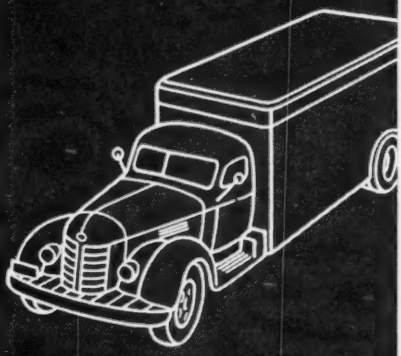
# Lowe Brothers ZINOXIDE cuts spray booth




* ZINOXIDE is the ideal time-saving, money-saving primer for a wide variety of products—turbines, barber chairs, road rollers, welding equipment and road signs, to mention just a few. It adheres perfectly to all types of metal — even aluminum!

# Primer handling time in half!

## produces a better looking job— practically eliminates sanding



**An Extra ZINOXIDE PLUS!** Contains 2 of the best corrosion resisting pigments known to the paint industry! Products primed with ZINOXIDE can be stored *outside* without danger of rusting!

A midwestern truck body manufacturer* had heard about ZINOXIDE Primer—was intrigued—but wanted to see the proof in his own plant. A Lowe Brothers "Finishing Specialist" demonstrated its amazing qualities of adhesion and durability with impact and conical mandrel tests on a ZINOXIDE primed panel. Then, he put ZINOXIDE to the test on one of the large, hard-to-prime truck bodies—and here's what the manufacturer saw:

1. **ZINOXIDE flowed out smoothly** — NO OVERSPRAY, even where it was necessary to double back on corners.
2. **Dried in minutes**—smooth as velvet!
3. **Required no sanding** — except for minor touch-up where dirt was on the surface.
4. **Ready for finish coat immediately**—no time and effort spent pulling body out of booth to dry!
5. **Smooth, beautiful gloss,** without "orange peel," was secured in finish coat — proving ZINOXIDE'S excellent "hold out" qualities!

**Now,** Lowe Brothers ZINOXIDE is at work in this plant everyday—producing better looking results —saving time and money, too, by greatly reducing sanding and handling costs. You'll find that it will be worth your time to check into the possibilities of using ZINOXIDE. Write today for details —no obligation.

**THE LOWE BROTHERS COMPANY • Dayton 2, Ohio**
**Industrial Division**

*This advertisement is based on facts from Lowe Brothers industrial case history files.*

LEADERSHIP THROUGH CONSISTENT SERVICE

**Lowe Brothers**
**FINISHES FOR INDUSTRY**

# Practical Applications of modern products

## Switch Boxes Cleaned, Dip-Enameled, and Baked Automatically

AT the Murray Manufacturing Co., Brooklyn, N. Y., safety switch and metering boxes are fabricated from pickled and oiled steel, cold rolled steel, or zinc-grip zinc coated steel.

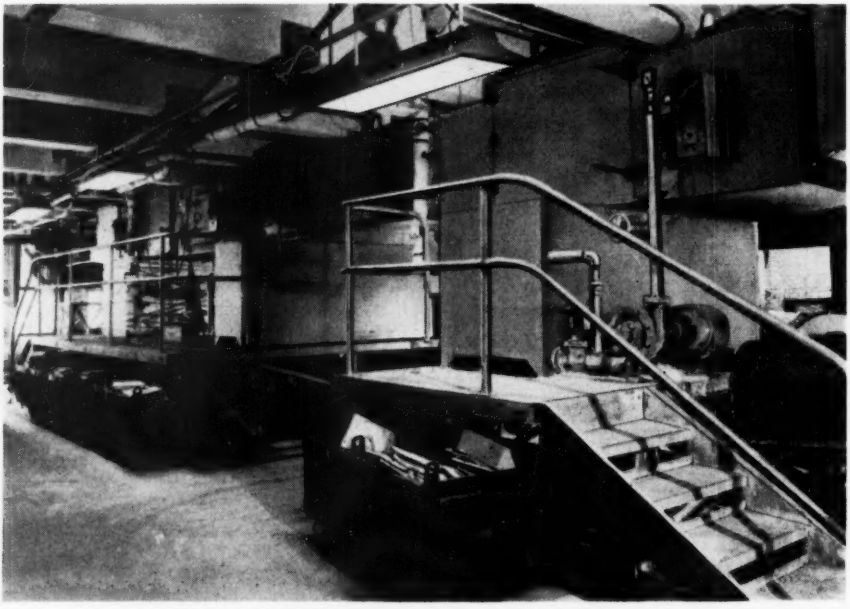
A completely conveyorized system, running through four stories of the plant, makes possible a production of 5,000 pounds of finished products per hour.

The formed assemblies and sub-assemblies are spray cleaned, Lithoformed, dipped in gray melamine enamel and baked to complete the series of process operations.

### Lithoforming*

After formed parts are hung on the conveyor, they proceed to the five-stage Lithoforming machine. Designed

* Reg. Trade Mark, American Chem. Paint Co.



View of the Lithoforming machine installed in Murray Mfg. Co. plant.

and built by the Industrial Washing Machine Corp., New Brunswick, N. J., the machine (designated as Model VT-71x26W-R-L) is 35 feet long, 9 feet wide, and 7 feet high. The machine is mounted on an elevated platform so that valuable floor space may be conserved.

The machine consists of five process stages through which the parts pass. These stages are:

1. Alkali clean. In this stage an alkaline cleaner (¼ oz./gal.) solution, generated at 160 deg. F., is used as a power spray wash. The 375 gallon solution, kept hot by steam coils, is recirculated through the spray nozzles. The solution is operated two days, discarded, and replenished.

2. Cold water spray rinse. The water is recirculated from a 275 gallon tank which is made to overflow constantly, keeping the rinse water clean.

3. Lithoform spray. This hot (155 deg. F.) solution (0.3 oz./gal.) is sprayed on the parts and recirculated. The 375 gallon solution is discarded daily. This section of the machine is constructed entirely of stainless steel, including the recirculating pump, all piping and spray nozzles.

4. Still cold water rinse. The parts are conveyed through a 1,000 gallon rinse tank, which overflows constantly.

5. Hot chromic acid rinse. Parts are rinsed in a 500 gallon tank of chromic acid (6 oz./gal.) held at 174 deg. F.

**Enameling**

Lithoformed parts dry on the conveyor and are transported through a tank of gray melamine enamel. After a suitable draining and "set-up" interval, switch boxes enter a gas-fired oven where the enamel finish is baked at a temperature of 325 deg. F. for ten minutes.

The finishing process described here is entirely mechanical; operators load the fabricated switch boxes and unload the same parts after the gray enamel finish has been baked.

Since the conveyor system is so extensive, each operating station is equipped with "start" and "stop" switches so that the conveyor can be shut down for emergencies and then started, at the same station at which it was halted. A recording meter keeps a record of conveyor stoppages and indicates the station at which the conveyor was stopped. This record aids studies of production losses.

---

## Cleaning Stubborn Deposits from Stainless Fabrications

**Oily Stains**

MANY metal fabricators still have trouble removing fingerprints, oil, grease, wax, greasy dirt, and other oily stains from stainless steel work. Here is the way Armco Research Laboratories recommend doing it.

Make a sudsy solution of Tide, or some similar detergent and water. Add about one-fourth as much carbon tetrachloride or a similar chlorinated solvent such as trichlorethylene. The

detergent acts as a wetting agent; carbon tetrachloride is a solvent. They work well together for this purpose.

Shake or stir the solvent vigorously. Use rubber gloves. Carbon tet should be used only in well-ventilated places. Wipe the solution over the stains with a cloth. Rub lightly or permit to stand for a few minutes and then rinse with clean water. "Glass Wax," made by Gold Seal Co., Bismarck, N. D., will remove fingerprints and help prevent fingerprinting.

**Inked Stencil Marks**

Some manufacturers report they have found that the colored trademark stencils on stainless sheets detract from a uniform finished appearance on some jobs. The same solution of a detergent, water and carbon tetrachloride or other chlorinated solvent described under "Oily Stains" should effectively remove stencil marks and grease pencil marks. If, after this treatment the markings have not come off, try Oakite No. 33 treatment described below.

**Heat Tint and Heavy Discoloration**

A combination of these methods is used to remove heavy surface discoloration and heat tint on stainless steel. First, clean off oil and dirt with the carbon tetrachloride—detergent solution. Follow this with the treatment using the special cleaner, Oakite No. 33, made by Oakite Products Co., Rector St., New York 6, N. Y. Rinse and repeat as necessary. Finally, rinse again. To remove heat tint, leave the Oakite No. 33 solution on the surface for at least an hour.

You can get good results from this treatment. Naturally it will not remove pits and will not prevent recurrence of the discoloration.

**Powder Cleansers**

Many manufacturers use a dry powder or a paste to remove fingerprints, collected dust, and other light deposits after fabrication. These are applied as they are and wiped off, taking the dirt with them.

Remember though that some cleansers used in this manner will scratch or burnish the stainless surface. If you use this method play safe and be sure to use a powder or paste that will not scratch the bright smooth surface of stainless steel.

Even the very fine cleaning powders will scratch or burnish a mill-rolled finish, such as No. 2B finish. Cleansing powders should not be used on mill-rolled finishes. They are satisfactory on polished sheets that have a scratch

IRIDITE
Corrosion Resistance
Choice of appearance—Paint Bond
on Cadmium—Zinc—Aluminum
IN CANADA
For Supplies—Sales—Service
VAN CAMP
Products & Sales Co.
177 Parliament St. Toronto, Can.
Write for Literature and Data

McKeon's
"Liquid Sulphur"
FOR COPPER STRIPPING NON-DANGEROUSLY
Economical, Non-Electrolytic.
No special equipment required.
Write for descriptive brochure.
Sulphur Products Co., Inc.
GREENSBURG 8, PA.

finish, such as No. 4 polish. Rub or wipe in the direction of the scratches, never across them.

## Air-Inflated Grinders Reduce Polishing Time

A considerable saving in the finishing operations was obtained by the Claus Mfg. Co. of Cleveland, Ohio, manufacturer of laboratory and restaurant equipment, when air-inflated grinders were introduced as part of the company's cost-reduction program.

In this company's plant, deep drawn stainless steel sink bowls enter the assembly line with a 2B finish, and are welded to stainless steel sink tops that have a standard No. 4 mill finish The bowls are matched to the sink tops with a grinding operation, where prior to the cost-reduction program hard-wheel grinders were used. According to Frank Greuling, plant manager, the inherent chatter and bounce of this type grinder always produced a herringbone finish. With the use of air-inflated grinders, a smooth finish is now obtained with the same crew. The output of work has almost doubled.

Two sizes of these air-inflated grinders, manufactured by Nu-Matic Grinders, Inc., 8224 Carnegie Avenue, Cleveland 3, Ohio, are used, five-inch diameter by $3\frac{1}{2}$ inches wide and $3\frac{1}{4}$-inch diameter by 3 inches wide. Both grinders consist of a rubber drum mounted on a core assembly. The operator slips an abrasive band over the drum and then inflates it from 3 to 10 pounds of air.

These grinders can be used with any kind of power tool for any kind of grinding or finishing job. Their resiliency is claimed to permit far greater abrasive contact area, eliminate chatter and bounce and enable the grinder to polish contours more efficiently.

## Continuous Paint Stripping Now Practical

THE stripping of paint from conveyor hooks, hangers and other conveyor line handling equipment, as well as paint rejects, can now be done

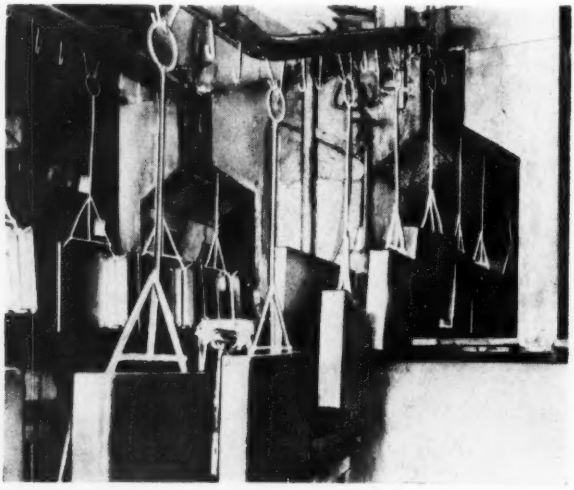
Air-inflated grinders used for grinding welds and polishing stainless steel at the Claus Mfg. Co. of Cleveland, Ohio.

rapidly by a new stepped-up method. New paint stripping chemicals make it possible to make the job a regular production conveyor line operation.

Announcement of this new development which meets rigid industrial specifications is made by T. Curtis McKenzie, president of Klem Chemicals, Inc., 14401 Lanson Avenue, Dearborn, Michigan.

The procedure, according to the Klem release, provides for running the conveyor line hangers, and so on, through a tank of the one-step stripper at a given point. Prior to reaching this stage, finished work pieces are removed and at this point, accumulated paint rejects can be placed on the line to be stripped along with the conveyor hangers. Extensive tests indicate a substantial saving in time.

The new high speed, one-step stripper can also be applied by production spray methods if desired.



Conveyor line hangers, and rejected parts enter one-step paint stripper to emerge (left rear) clean, ready for reprocessing.

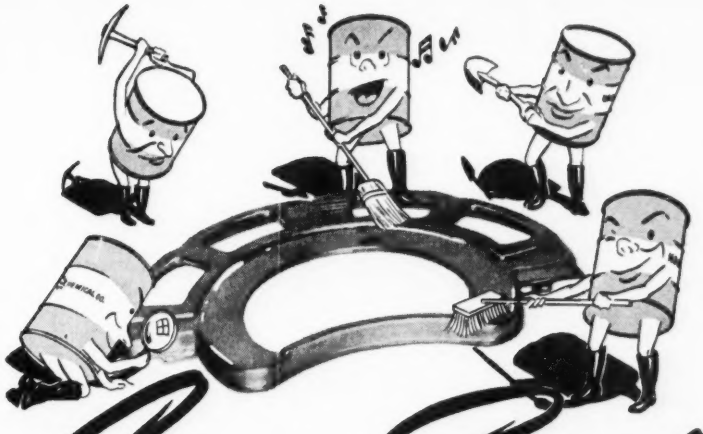
**Tufbak "Behr Facts."** Behr-Manning Corp., Dept. PF, Troy, N. Y., has just released a four-page brochure on Tufbak, a waterproof sand paper. A list of the various advantages of this sand paper is given and a large sample is attached.

---

**50-Year Index To ASTM Technical Papers And Reports.** Published by The American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. 216 pages. Cloth binding. Price, $6.00.

This 50-Year Index provides a detailed author and subject index to all the ASTM technical papers and reports dealing with materials, particularly their properties and testing, appearing in ASTM publications covering the period from 1898 through 1950.

This Index is intended to make readily available a means of locating information relative to a particular subject, or author, with a minimum expenditure of time and effort, and without making the index too unwieldy. It is concerned basically with technical papers which have appeared in Proceedings, ASTM Bulletin, Special Technical Publications, or special compilations of standards. In addition, a number of technical reports have been referenced which, while not credited to a specific author, nevertheless provide worth-while data and information which should be considered when searching the available data in ASTM publications on a specific subject. Many of these reports are the result of cooperative effort in technical committees.



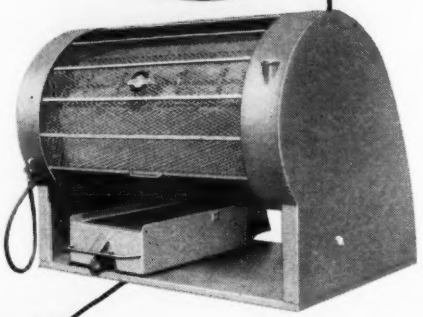
# Cleaning Specialists

Anyone can do a cleaning job that *looks* good but a Northwest Chemical cleaning operation brings 'em **REALLY CLEAN**—gets at those tough-to-crack, invisible trouble makers that turn up on final inspection as costly rejects.

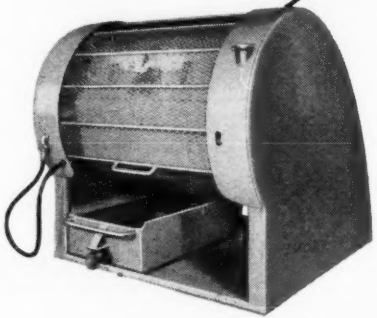
We at Northwest take a personal interest in your cleaning problems. Our thoroughly experienced staff of chemical technicians will be pleased to help you solve your cleaning difficulties. Their broad experience may save you time and money with a simple formula adjustment or a complete new processing to fit your exact requirements.

*No job is too small for our attention nor too large for our abilities.*

# Come to TUMBLE GRAV-I-FLO FINISH for ALL your tumbling needs!



Model 66", two compartments



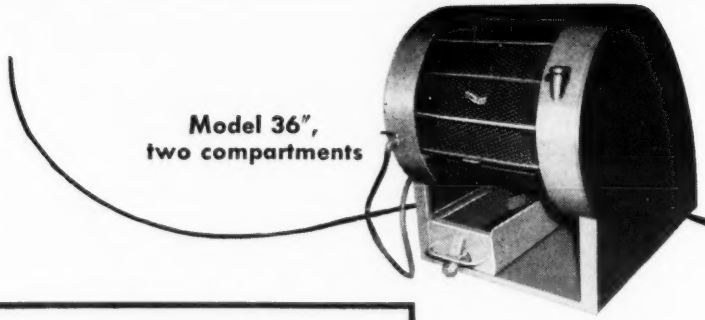
Model 48", two compartments

You can get complete equipment and supplies for faster, better tumbling at Grav-i-Flo. This authoritative tumbling source can furnish you, from its years of experience, the correct answer to any tumbling problem.

Larger capacity machines take 31% to 80% more work-load in same floor space. Improved cutting materials shorten cutting cycle by 15% to 25%. Grav-i-Flo installations substantially reduce capital investment, floor space, and production time!

## MACHINES

Grav-i-Flo 66", 48" and 36" machines have cam locked doors with manually released safety stops; available with unlined or rubber lined cylinders, constant or variable speed drive, J.I.C. controls, and timers from 5 minute to 20 hour cycles. Equipped with electric wiring and water piping installed ready for plant hook up.



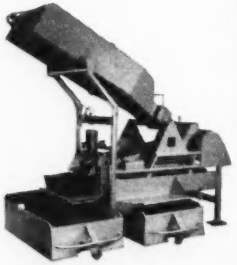
Model 36", two compartments

**Model 24", two compartments**

Designed For Small Lot Production and Laboratory Processing.

## ACCESSORIES

**Two deck parts-and-chips separator and chip grader**



Occupies less floor space. Separates parts quickly without impingements. Grades 3 sizes of chips simultaneously.

**Other Grav-i-Flo accessories include tubular yoke hoist pans, chip pans, wash-out doors, screens, chip bins, unloading boots, dip tanks.**

## *Chips and compounds*

Grav-i-Flo natural and synthetic deburring and finishing chips and highly developed compounds consistently outperform every type of tumbling process offered on the market.

## *Investigate!*

Grav-i-Flo superiority in equipment and supplies has been proved to hundreds of users in many different industries. Let us show you, too, at no obligation. Our representative will visit your plant, or send samples direct to us. Engineering Service available to all users.

***SEND FOR CATALOG*** showing complete line of Grav-i-Flo equipment, accessories and supplies.

**THE GRAV-I-FLO CORPORATION**

Dept. PF4, 400 Norwood Avenue
STURGIS, MICHIGAN

# NEWS of the Industry

## NEW PLANTS

New warehouse facilities have been opened at 107 Pittsburg St., Dallas, Texas, by **INDUSTRIAL TAPE CORPORATION** of New Brunswick, N. J.

Operation of the warehouse is under the supervision of William Cooker. Industrial Tape Corporation's line of "Permacel" and "Texcel" tapes will be distributed from this warehouse to Texas and surrounding areas.

Opening of the new Dallas facilities increased to eight the number of warehouses the Industrial Tape Corporation maintains throughout the country.

Arnold O. Beckman, president and founder of **BECKMAN INSTRUMENTS, INC.**, South Pasadena, California, officially broke ground for the new, two million dollar, 200,000 square foot instrument factory and administrative offices to be erected on the 40 acre site between Ocean Avenue and Imperial Boulevard on Highway 101 in the La Habra-Fullerton area.

Details of the new plant were presented by Larry Davidson of the Donald R. Warren Co., designing engineers. "The structural steel buildings," said Davidson, "are designed to provide maximum flexibility for an expanding organization. All exterior walls can be easily disassembled and moved to keep pace with future expansion." A large cafeteria with a modern food preparation center and

**METALWASH MACHINERY CORPORATION** recently expanded and modernized the main office building of its Elizabeth, New Jersey, plant.

J. L. Pettit, vice president and general manager of the 27-year-old firm which manufactures washing, pickling and drying machinery for industry, announced, "This addition to our offices completes the first stage of a broad expansion program begun last year."

(Left) Entrance view of the recently expanded and modernized Elizabeth, New Jersey plant of Metalwash Machinery Corporation.

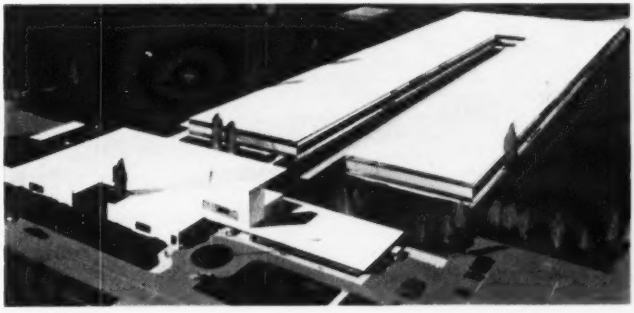
pleasant dining room is included for the convenience of employees and visitors. The dining area will also provide room for employee s social events and meetings. Acoustical tile ceilings and glare-resistant windows are indicative of Beckman's desire to provide working comfort for his employees. To facilitate controlled temperatures, so necessary in the manufacture of precision optical parts, an insulated steel deck runs throughout the factory.

The manufacturing area has been carefully designed to permit a steady flow through production operations from raw material to completed instruments. A landscaped open-air central walk allows visitors to move from the main foyer and administrative offices to individual production departments without passing through factory areas. Ample parking space will surround the plant with numerous exits to provide easy access to the highway without congestion.

First occupancy is scheduled for midsummer with completion of the first unit later this year. Although Beckman employees now number about 1500 the site has been chosen to allow for growth to a possible organization of 6,000. The phenomenal and rapid growth in the past 18 years indicates that this allowance for future expansion is mandatory. In 1935 Beckman Instruments occupied approximately 2500 square feet and now has immediate use for the 200,000 square feet planned at La Habra.

In addition to the normal manufacturing and administrative operation a large research and development facility is included in the new plant. Constant research has been the backbone of the Beckman organization and has contributed much to today's instrumentation. Modern electronic instruments have become the key to more efficient process control and greater production in nearly every industry, and will be required in ever increasing numbers.

It can be said that the arrival of Beckman Instruments, Inc., in the La Habra-Fullerton area brings a modern factory producing a diversification of products calling for unusual versatility of skills.



Architect's conception of new plant of Beckman Instruments, Inc.

---

**METALWELD, INC.**, Hunting Park Ave. and Fox St., Philadelphia 29, Pa., has announced the opening of a new MW Scotts Lane Plant, located on a 4 acre tract at Scotts Lane and Abbottsford Ave., near the main highway arteries of the eastern industrial area.

According to S. John Oechsle, president, the new plant will provide additional space for MW's enlarged Protective Coatings and Industrial Welding Divisions. MW Construction Equipment Division, also expanded, will occupy Metalweld s original plant at Hunting Park Ave. and Fox Street.

---

**NATIONAL LEAD COMPANY** will operate its newly-acquired Pioneer Alloy Products Division as a part of its metal department, it has been announced by W. J. Welch, manager of the department. Pioneer Alloy s production consists of corrosion-resisting valves, with wide application in the chemical processing and refining industries, and heat-resisting and acid-resisting castings for general industrial use.

This production rounds out the company's metal department output, with a line of stainless steel valves supplementing its lead valves. Other products include lead pipe, sheet lead, traps and bends, solder, bearing metal, printing metals, storage battery metal, acid concentrators, acid pumps, lead lined valves and fittings, and other similar products for the chemical, building, petroleum and steel industries.

Complete new plant facilities for rubber or Koroseal lining all types of plating tanks have been installed in the New Haven, Connecticut plant of **FREDERIC B. STEVENS, INC.**

"Stevens Koroseal 'welded' tank linings have proved themselves to be the ideal tank for metal finishing operations," stated Henry Stevens, the company's New England branch manager when he announced the new installation.

"The advantages of Stevens Koroseal linings are longer wear, elimination of contamination and vulcanizing and unusually high corrosion resistance. With Stevens 'welding' process Koroseal linings bond permanently at approximately 100 pounds per square inch. Linings may be applied to wood, steel, concrete or any other material commonly used for plating tanks."

The new Stevens installation will be in a position to serve most of the northeastern states.

---

Edsel L. Faulman, chairman of the board of the Naraco companies, announced that Naraco is opening a new plant at 3462 San Fernando Road in Los Angeles, California. This addition to Naraco's family of five will be known as **THE INDUSTRIAL RACK COMPANY.** The other factories are The American Rack of Cicero, Illinois, The National Rack with two plants in Paterson, New Jersey, and the two plants of the Imperial Plating Rack Company of Flint and Hazel Park, Michigan. With the establishment of The Industrial Rack Company, Naraco extended its service to the finishing industries from coast to coast.

The Industrial Rack building houses many special pieces of custom designed Naraco equipment. Executive offices are situated within the plant and are geared to handle orders with speed and efficiency. A section of the plant has been reserved for the engineering staff and research development units. Special plating rack problems on latest types of finishes will be handled by these departments.

William Zube, former president of Naraco's Cicero, Illinois plant has been appointed as president of Industrial Rack.

## COMPANIES

Announcement of the appointment of new representatives for the greater New York Area and northern New Jersey was made recently by **DeBOTHEZAT FANS DIVISION, AMERICAN MACHINE & METALS, INC.**

The complete line of DeBothezat's industrial ventilating equipment will be handled in those areas by Air, Dust and Fume Control Company, with offices at 50 Church Street, New York City and Broad Street, Newark, New Jersey.

---

**THE FOXBORO COMPANY,** Foxboro, Mass., manufacturer of industrial instruments for measurement and control, has opened a new branch office at Wichita to serve instrument users in the Kansas area. Located at 2207 South Pinecrest, the new branch brings the Foxboro total to 42 offices within the United States.

New Plant of Industrial Rack Company

**OXY-CATALYST, INC.**, Wayne, Pennsylvania, has appointed **DRAVO CORPORATION**, Pittsburgh, Pennsylvania, as sales and engineering representative for its Oxycat, an air pollution-control and heat-recovery device that first gained recognition last May by running an Allentown, Pennsylvania, plant on its own process smells.

Dravo, through its Machinery Division, will handle the new catalyst initially in West Virginia, western Pennsylvania, eastern Ohio, western Maryland and eastern Kentucky (through Dravo's Pittsburgh office); Delaware, Virginia, southern New Jersey, eastern Maryland, eastern Pennsylvania and the District of Columbia (through its Philadelphia office and sub-office in Washington, D. C.); western Kentucky, all of Ohio not handled by the Pittsburgh office, Erie County in Pennsylvania, Indiana and Michigan (through the Cleveland office and its branches in Cincinnati and Detroit); and northern New Jersey (through the New York office).

The Dravo Machinery Division will be responsible for the sales, application engineering, installation and servicing of Oxycats in industrial plants and in both industrial and municipal incinerators.

Dr. C. B. F. Young and Mr. Nathaniel F. Crisera, in cooperation with Mr. Victor G. Gottlieb and Mr. David Neustadt, have announced the formulation of a new company, the **AUROMET CORPORATION**, 267 Elizabeth St., New York 12, N. Y. The corporation will manufacture precious metal solutions and salts and offer a complete service by the experienced personnel who were formerly connected with A. Robinson & Co., in the field of electrodepositing gold, silver, platinum, palladium and rhodium. Scrap metals and solutions will be refined.

---

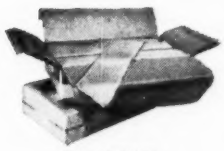
**THE CAMBRIDGE WIRE CLOTH COMPANY**, Cambridge, Maryland, has opened a southern sales territory with headquarters at 333 Candle Building, Atlanta, Georgia.

**JAMES M. EVANS**, formerly with Devoe & Reynolds Paint Co., has joined the Cambridge sales staff to handle both sales and service work in the new territory from the Atlanta office. The southern territory includes the following states: North and South Carolina, Georgia, Florida, Alabama, Mississippi, and parts of Tennessee.


*For Dust Free Finishes!*

**BOND TACK CLOTH**

**IN ROLLS**
Cut off any size piece to use as needed.



**IN BULK**
Cut and folded. Ready to use.

**STAYS SOFT AND TACKY — A SPECK-FREE FINISH EVERY TIME**

**Now Available in Rolls or Cut Bulk—White or Gold In Three Different Types of Cloth**

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up!

The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" for ease of handling. ALL BOND TACK CLOTH is *Spontaneous Combustion Proof, Lint-Free* and *Wax-Free*. Gives a sparkling speck-free Finish *every time*. Clean and sanitary. No waste.

**TRY THEM and COMPARE RESULTS. Samples Gladly Sent Upon Request.**

**BOND CHEMICAL PRODUCTS CO.**
*"The Tacky Wiper Specialists"*
2639 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS

ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES —144 to the Carton

**A WARRANTY OF SATISFACTION IN EVERY CARTON**

New products ranging from resins for plastic automobile bodies to fire-resistant coatings for wallboard and ceiling tile were revealed at the **GLIDDEN COMPANY'S** two-day national industrial sales conference in Hotel Carter, Cleveland, Ohio.

Stain resistance of Nubelon S, silicone resin base baking enamel developed by The Glidden Company, is demonstrated here for A. D. Duncan, left, Glidden vice president and general manager of the paint and varnish division. Thomas N. Armel, national industrial sales manager of Glidden's paint and varnish division, quickly and easily removes vegetable dye from a refrigerator door as Mr. Duncan looks on.

More than 200 members of Glidden sales, service and technical staffs representing 10 plants in the United States and Canada were welcomed to the sessions by A. D. Duncan, Glidden vice president and paint division general manager.

Among products with most significance to industry was Nubelon S, a Glidden baking enamel combining extreme surface hardness with a hitherto unattainable flexibility.

The new coating requires baking at 425 degrees. However, its outstanding resistances, color retention and one coat toughness make it an excellent appliance finish. It suggests the possibility of prepainting before fabrication of certain products.

Thomas N. Armel, national industrial sales manager for the Glidden Company, conducted the conference, at which were discussed:

New Techniques and methods of the paint industry; new products added to the Glidden industrial paint line; programs of manufacturing and research development.

Forum discussions aimed at keeping Glidden personnel acquainted with latest processes in related fields occupied two of the sessions.

Recent developments in pre-treatment of metals before painting were explained by a panel consisting of F. P. Spruance, vice president of the American Chemical Paint Co., Ambler, Pa.; H. F. Neilson of the Neilson Chemical Co., Detroit, and F. J. Dewitt, vice president of the Parker Rust Proof Co., Detroit.

Another group, including Jack Harrison of the Spray-Lon Co., of Chicago; H. P. Ransburg, vice president of the Ransburg Electro-Coating Corp., of Indianapolis; J. A. Bede, president of Bede Products, Inc., Cleveland, and R. J. Ruff, president of the Catalytic Combustion Corp., of Detroit, talked on modern paint application methods.

With each speaker describing equipment supplied by his own firm, such modern methods as electrostatic spraying and airless atomization spraying were included in the forum.

Combustion of paint spray exhaust vapors for heating economy, and modern methods of flow coating were also discussed.

New developments and performance of Nu-Pon primers and enamels—much in favor with makers of home laundry equipment—were described.

Nubelon S was introduced during discussions on the general subject of Nubelons—finishes with silicone bases.

Among new products were industrial emulsion coatings, which may be used on such items as furniture or automobile springs to assure soundproofing as well as metal protection. In application, emulsions eliminate fire hazards in industrial dip tanks through the use of water as an application agent, rather than a combustible thinner.

Also discussed were Nubelyn coatings —a series of vinyl products widely used for can enclosure coatings, labels, metal decorating and rubber products.

Plastic automobile bodies, plastic bathtubs, refrigerator liners and other revolutionary products entered the discussion with the introduction of Glidpol, trade name for the polyester resins which form such items.

Other products discussed at the conference included wood coatings, wire coatings, paper and label coatings, farm machinery enamels and hardware and automotive finishes.

Manufacture and sale of all precious metal plating solutions formerly made and sold by A. Robinson & Son of New York has been taken over by **TECHNIC INC.**, Dept. 10A, 39 Snow Street, Providence, R. I., according to Mr. Frank K. Smith, president of the latter company. Technic Inc., has acquired sole rights to Robinson's "Assayed" Gold Plating Solutions and Salts, and henceforth will produce them exclusively in accordance with the high standards established by Technic for its own line of precious metal plating solutions.

---

**THE GLYCO PRODUCTS CO., INC.**, of Brooklyn, N. Y. and Williamsport, Pa., is now celebrating its twenty-fifth anniversary.

Its first products were polyol derivatives used in small volume but filling a definite need. Today it makes more than a hundred synthetic organic derivatives. The principal products are edible and technical surface active agents, synthetic waxes and plasticizers. These are used in manufacturing or processing plastics, rubber, paints, paper, insulation, asphalt, textiles, lubricants, foods, candy, dairy products, pharmaceuticals, waterproofings, rustproofings, flameproofings, waxes, insecticides, detergents, metals, leather, furs, abrasives, inks, ceramics, adhesives, cosmetics and others.

---

**PITTSBURGH PLATE GLASS COMPANY** has announced a four-year science and engineering scholarship to be awarded an outstanding high school senior at Mt. Vernon, Ohio, site of the firm's largest window glass producing plant.

The announcement was made by Richard B. Tucker, executive vice-president, who said the scholarship is designed to encourage talented students with leadership characteristics to pursue science and engineering careers.

Although the initial $4,000 scholarship is currently limited to Mt. Vernon, if it proves successful, similar scholarship programs may be extended in the future to other Pittsburgh Plate plant locations.

Selection of the initial scholarship recipient this spring will be made by an Award Committee, headed by Dr. Webster N. Jones, dean of the College of Engineering and Science at Carnegie Institute of Technology. Other committee members are Dr. Joseph H. Koffolt, chairman of the engineering department of Ohio State University, and Robert B. Brown, Kenyon College secretary.

Alexander N. Braun

Alexander N. Braun, who has been active in the lacquer industry for 35 years, has organized **BRAUN ORGANIC FINISHES, INC.**, making quality lacquers and synthetics, at 43 - 44 Tenth St., Long Island City 1, New York.

Mr. Braun is first vice - president of the Metal Finishing Suppliers' Association and is also active in the New York Branch of the American Electroplaters' Society.

## NEW POSITIONS

Charles H. Groff

The Watson-Standard Company has announced the appointment of **CHARLES H. GROFF** as technical director of the company. Mr. Groff will direct an expanded program of research and development of paints, varnishes, lacquers, and plastic compounds for diversified fields of industry.

He was formerly technical director of Surface Chemicals, Inc., and was asst. technical director at Watson - Standard Company from 1943 to 1946. Mr. Groff has had long and varied experience in the organic protective coatings field and is well known in the metal lithographing industry.

He attended Temple University, is a Fellow of the American Institute of Chemists and is a member of the American Chemical Society, the American Association for the Advancement of Science, the Pittsburgh Chemists' Club, and the Pittsburgh Paint and Varnish, Production Club.

R. B. Waters

The appointment of **R. B. WATERS** as sales engineer in Ohio for Thompson & Co., Oakmont, Pa., has been announced.

Mr. Waters is a 1936 chemical engineering graduate of the University of Michigan. He spent three years in research and production work with various Chicago area paint manufacturers, and in 1940 joined the Surface Coatings Division of The Bakelite Corp. as sales engineer with offices in Cleveland.

In his new capacity, with headquarters in Cleveland, Mr. Waters will sell and service the complete Thompson line of industrial coatings, including electrical insulation varnishes and the Vinsynite series of metal pretreatments.

---

A. R. McNeil

Harold Leever, vice president of MacDermid Incorporated, has announced the appointment of **A. R. McNEIL** as New England sales manager.

For the past nine years, Mr. McNeil has been Bridgeport sales service representative for MacDermid. He is active in the American Electroplaters' Society, having held every office in the local branch.

**RICHARD NYQUIST** of the sales laboratory has joined the field force as sales service representative. Mr. Nyquist is a graduate of Michigan State College and was in the sales laboratory in Waterbury for three years.

**ALLEN FERGUSON**, former chief chemist of Electrolux Corp., Old Greenwich, Conn., has joined the MacDermid sales service laboratory. Mr. Ferguson is a graduate of Baltimore City College and served in the Navy during World War II.

**DR. HERBERT FINEBERG**, chief chemist of the Glyco Products Co., Inc., Williamsport, Pa., has been promoted to the position of director of research.

Dr. Fineberg received his Ph.D. degree from the University of Illinois. He has previously been a research chemist for the Eastman Kodak Co., chief chemist for the Connecticut Hard Rubber Co., and Director of The Geral Chemical Co.

---

George Schore

**GEORGE SCHORE** has joined the staff of the Frederick Gumm Chemical Co., Kearney, New Jersey, as technical sales representative.

Mr. Schore has been superintendent of many of the large finishing plants in the New York area. He is an active member of the New York Branch, A.E.S., and will serve as General Chairman of the 1954 A.E.S. Convention to be held in New York City.

His duties at Frederick Gumm Chemical Company will include the engineering and layout of plating, polishing, and spraying plants and the sale of equipment and supplies for the finishing industry.

---

William R. Moore, vice-president, Norton Company, Worcester, Mass., has announced the appointment of **GEORGE H. POWERS** as refractories engineer, responsible for the New York and New Jersey territory with headquarters in the company's New York City office. Mr. Powers replaces Fred E. Leiby, present refractories engineer, who retired.

**LINCOLN M. JOHNSON** was named honing engineer and will make his headquarters at the company's Detroit office.

**ENFRIED T. LARSON**, formerly sales engineer, was appointed editor of technical publications. He will be responsible for editing Grits and Grinds, a technical company outside publication, as well as all technical and educational booklets and bulletins. These appointments were made known by Ralph M. Johnson, vice president in charge of sales.

Hooker Electrochemical Company has announced the appointment of **DONALD J. STONE** as mechanical engineer, **EDWARD A. HUTTON** as chemical engineer and **ROBERT H. PUGH** as chemist.

Mr. Stone is a graduate of Purdue University and Mr. Hutton a graduate of Clarkson College of Technology.

Mr. Pugh graduated from Ohio Northern University and has had previous experience with National Carbon Company, the DuPont Company and United States Rubber Reserve.

---

Robert H. Allgood

Detrex Corporation, Detroit, Mich., manufacturer of industrial cleaning equipment and chemicals, has announced the appointment of **ROBERT H. ALLGOOD** as director of public relations for both its industrial and drycleaning divisions.

In his new position, Mr. Allgood will direct all advertising, publicity and sales promotion activities of the company. He came to Detrex from Hixson & Jorgensen, Inc., Los Angeles, Calif., national 4A advertising agency where he was an account executive, specializing in industrial accounts. Before joining that organization he was with the Radio and Television Division of the Westinghouse Electric Supply Co., in Vernon, Calif., and sales and advertising manager for the SMA Company, Inc. Chicago, a private brand manufacturer of television sets and components.

---

**HERBERT P. DALES** has been appointed sales manager and **CARL L. ADELMAN**, assistant sales manager of the Coated Products Division of The Carborundum Company, according to an announcement by W. H. Wendel, vice president of the Division.

Both Dales and Adelman have had long experience in the coated abrasive field. Dales was for five years a coated abrasives sales engineer, then salesman, and finally assistant manager of the Chicago Sales District.

Herbert P. Dales, Carl L. Adelman

Adelman started with Carborundum as a junior salesman in the New York Sales District in 1930. He was transferred to the Buffalo Sales District as an industrial salesman and for the past three years has sold coated abrasives exclusively. Their headquarters will be at the Coated Products Division of The Carborundum Company, Wheatfield, New York.

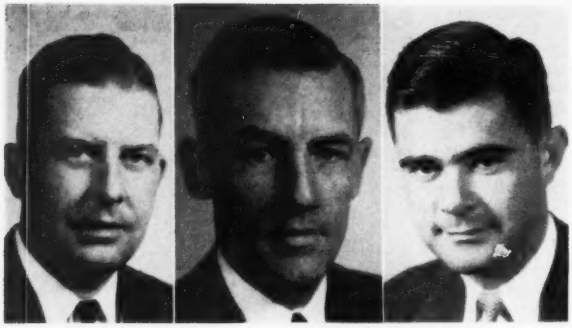
---

**H. E. SPITZER** has been named director of development for the Sherwin-Williams Co., according to an announcement made by A. B. Holton, the firm's paint, varnish and lacquer technical director.

H. E. Spitzer

A graduate of North Dakota State College, Mr. Spitzer joined Sherwin-Williams in 1937. In 1946 he was put in charge of the company's Chicago technical service department, and in 1952 assumed general supervision of the paint, varnish and lacquer development laboratories at Chicago.

In his new post, Mr. Spitzer will supervise all of the company's development laboratories, except the trade sales development section, which is headed up by S. F. Carlson in Cleveland.



(Left to right) Warren R. Spofford, Gordon T. Rideout, David H. Paul

Three new appointments in the sales force at Norton Company have been announced by Ralph M. Johnson, vice president in charge of sales.

**WARREN R. SPOFFORD,** Millbury, Mass., abrasive engineer formerly handling Worcester County, will take over a new metropolitan Boston territory.

**GORDON T. RIDEOUT,** Shrewsbury, Mass., formerly sales engineer in the Worcester office, has been appointed abrasive engineer and will take over the Worcester County territory, replacing Mr. Spofford.

**DAVID H. PAUL,** Melrose, Mass., formerly abrasive engineer in Arkansas, western Tennessee, Mississippi and Louisiana, who recently returned to the Company after serving 14 months with the U. S. Navy, has been appointed field engineer in the Philadelphia district.

---

A. S. Ault, vice president, sales, Chicago Vitreous Enamel Product Company, has announced the promotion of **LEE JOHNSON** to assistant manager of service, a position formerly held by **JOHN McLAUGHLIN** who will now devote his full time to special projects.

Mr. Johnson joined Chicago Vit in April, 1937, as a chemist and worked primarily on raw materials and frit analyses. During the war he helped to set up the chemical control procedures necessary in the production of thermit, dried eggs and armor plate. At the end of the war he was transferred to the ceramic laboratory to work on research and development of new frits. In 1949 Johnson was promoted to the sales and service organization as a service engineer.

Mr. McLaughlin became associated with Chicago Vit in June, 1937, following his graduation from North Carolina State College. He spent several years in the research laboratory and then went to Baltimore Enamel Novelty Company from June of 1940 to November of 1940. After almost five years of military service, during which time he rose to the rank of Major, he rejoined Chicago Vit in October of 1945 as a member of the research division. In April, 1950, he was named assistant manager of service. During the past year and a half, he has concentrated his activities on special development projects, one of the most important being the enameling of television cones.

---

The board of directors of Titeflex, Inc., Newark, N. J., has announced the following promotions:

**HENRY S. ELDER** has become executive vice president. He has served as vice president of Titeflex since joining the company in 1946.

**GEORGE K. LICHT** has been appointed vice president in charge of production at the Company's two plants in Newark, New Jersey. He joined Titeflex in 1935 and was appointed works manager in 1948.

**JOHN J. PHILLIPS** is now vice president in charge of sales and engineering. He joined Titeflex in 1940 and became chief engineer in 1949. In his new position, he will consolidate and coordinate the company's sales activities with its engineering operations. Mr. Phillips is a member of the Society of Automotive Engineers.

---

Wagner Brothers, Inc., manufacturer and distributor of plating supplies and equipment, has added three sales representatives to service the Eastern Michigan territory, which includes Detroit and Toledo, according to an announcement by O. H. Tiedeman, vice president in charge of sales. The new men, **LARRY GLYNN, HENRY PFEUFFER** and **HERB MARX,** have had wide experience in production plating with leading plat-

(Left to right) Henry Pfeuffer, Larry Glynn, Herb Marx

ing firms in the territory they will service. Glynn and Pfeuffer have extensive chemical engineering and sales backgrounds. Marx has been in mechanical sales engineering. They will locate at the home office, 432 Midland Avenue, Detroit 3, Michigan.

---

The Kellogg Division—American Brake Shoe Co., Rochester, N. Y., manufacturer of air compressors and paint spray equipment, has appointed **L. D. BAX** sales representative for Montana, Idaho, Wyoming, Utah, Colorado, Arizona, New Mexico and part of Nevada and Texas. Mr. Bax will make his headquarters at 714 Lincoln St., Denver, Colorado.

---

**KENNETH A. EARHART**, a leading expert in coating resin development has been named to the newly created post of manufacturing manager, coating resins department of the Plaskon Division of Libbey-Owens-Ford according to an announcement by John A. Morse, operations manager.

Mr. Earhart comes to Plaskon after several years with the U. S. Industrial Chemicals Co. He is the inventor of six patented resin developments and has particular experience with alkyd and silicone types.

---

**DR. RAYMOND F. SCHULTZ**, technical director of the Experiment Station of Hercules Powder Company, has been named special assistant to the director of research. Associated with Hercules since 1941, he had been technical director of the Experiment Station since November, 1951, and previously, director of the research center since 1945.

**DR. PETER VAN WYCK**, former associate technical director of the Experiment Station, has become station director. He has been associated with Hercules since 1930 and had served as associate technical director of the Experiment Station since January, 1952.

Detrex Corporation of Detroit, manufacturer of industrial and drycleaning equipment and chemicals, has announced the election of **P. H. RICHEY** as assistant treasurer and **F. J. CHMIELNICKI** as assistant secretary.

After graduating from the University of Michigan, Mr. Richey was associated with the Detroit Bank before joining Detrex in 1948. Advancing through various positions in the Controller's office, he was appointed personnel director in 1950. Subsequently, he was assigned to special duties in the office of E. W. Allison, treasurer.

Mr. Chmielnicki has been with the company for 11 years as counsel and as head of the Detrex Legal Department. Graduate of the University of Detroit, he is a member of the Detroit and Michigan Bar Associations. He is on the executive committee of the Michigan Section of the American Industrial Hygiene Association, and a member of the Michigan Patent Law Association.

---

The appointment of **ROBERT W. PELZ** as assistant to the director of research of the Ferro Corporation, Cleveland, Ohio, has been announced by O. O. Kenworthy, director of research.

Born in Chicago in 1919, Mr. Pelz was graduated from the University of Illinois with a B.S. in ceramic engineering in 1946; and took a Master's degree in the same field, the following year.

Long active with Ferro's ceramic research projects, Mr. Pelz has lectured extensively before colleges and other groups, on "The Story of Porcelain Enamel," a demonstration-talk originated by Dr. M. J. Bahnsen. He has also contributed to ceramic literature.

For more complete information on products and processes use READER SERVICE CARDS inside covers.

Douglas McKellar

Reynolds Metals Company has announced the appointment of **DOUGLAS McKELLAR** as manager, paint market sales, and Edward F. Reilly as assistant manager of the paint sales division. Among their duties will be national promotion of the aluminum paint being made by leading manufacturers with pigments supplied by Reynolds.

Mr. McKellar was graduated from Yale University with a Bachelor of Science degree. Prior to his association with Reynolds Metals, he was employed in chemical pigment sales by the Kentucky Color and Chemical Company, Louisville.

Mr. Reilly, a native of New York City, joined Reynolds in 1940, and has been actively engaged in paint market sales work for the past several years.

---

**ROBERT FEIGIN** has been appointed technical director of the Globe Compound Co., Inc., Waterbury-Bristol Rd., Wolcott, Connecticut. Mr. Feigin, formerly chief chemist in charge of application research, technical service and formulation at the Alrose Chemical Company, will organize a comprehensive program in the further development of buffing compositions and related products for finishing applications.

---

**GEORGE A. PARK**, Norton Company sales manager, eastern region, has been appointed manager of distributor sales according to an announcement by Ralph M. Johnson, vice president in charge of sales, Abrasive Division.

To free Mr. Park for this new responsibility, eastern and central sales regions will be combined under Donald L. Price as sales manager, eastern region.

Fred W. Bonacker, general manager of The Carborundum Company's Industrial Abrasive Sales Division, has announced the following personnel changes in three district sales offices.

**RUSSELL P. COLOSI**, formerly office manager for the Cleveland Office, has been appointed assistant to the Cleveland District sales manager.

**CHARLES J. WALTER** was transferred from the position of office manager of the Los Angeles District to office manager of the Cleveland District.

**WILFRED ROBSON**, assistant office manager of the Chicago District was transferred to the position of office manager of the Los Angeles District Office.

**JOSEPH A. MARRONE**, chief stock clerk at the Chicago Office since 1949, was appointed assistant office manager of the Chicago District Sales Office.

---

It has been announced that **RALPH C. PERSONS** was named president and **GEORGE W. ULLMAN** was named chairman of the board of directors of the Sun Chemical Corporation of Long Island City, New York, at the recently held regular meeting of the board.

---

**HAROLD E. KLEINTOP** of Parkesburg, Pa., has been appointed manager of Wire Product Operations of Hewitt-Robins, responsible for production and sales at the Philadelphia plant.

Mr. Kleintop in a native of Allentown, Pa. He was graduated from the public schools of Allentown after which he attended Penn State College and Lehigh University.

---

Philton Co., Wilmington, Del., has announced the appointment of **JOHN F. SCHEETZ** as general manager.

Philton is marketing agent for Colonial Alloys Co., Philadelphia, in the sale of products and the granting of licenses having to do with anodizing, chemical polishing, cleaning and dyeing of aluminum and its alloys.

**DALE G. HUGLEY** has been appointed resident engineer at the new Wichita Office of the Foxboro Company. Mr. Hugley was formerly with the Tulsa Branch as industrial engineer. He is a graduate of Oklahoma A & M and has had extensive experience in the application of instruments in industry.

**GEORGE R. SCHMITT,** formerly with the Zapon Div., Atlas Powder Co., has joined the Mansfield Paint Co., Mansfield, Ohio, as industrial sales manager. Mr. Schmitt is well known throughout Ohio and Western Pennsylvania. He has had wide experience in sales service work in the protective coating field.

**JOHN D. MacNAMARA** has been named field sales manager for Beckman Instruments, Inc., South Pasadena, California.

Mr. MacNamara will oversee the training of 20 new field engineers.

Gordon J. Berry, president of The Electric Products Company, Cleveland, Ohio, has announced these new appointments: **DR. W. A. THOMAS** has been appointed chief engineer and will be responsible for all electrical and mechanical design engineering, development and research. He was manager of electrical engineering.

**E. D. SMITH** is now consulting engineer and will be responsible for assigned engineering projects requiring highly specialized investigation and development.

**J. J. UNGER** becomes manager of electrical engineering and will be responsible for all electrical design activities.

**J. R. WILLIAMS,** formerly the central planning manager, has been appointed manufacturing manager and will be responsible for all production, production control and industrial engineering.

**R. H. WORBY** has been appointed chief industrial engineer and will be responsible for methods, tools, plant layout, materials handling, plant engineering and maintenance.

The Electric Products Company has been a manufacturer of special motors and generators since 1909.


# BAR-L* VAPOR DEGREASER

*Economical, Trouble-Free, Parts Cleaning!*

* Patent Pending

Bar-L Vapor Degreaser cleans all metal parts, removes sludge, grease, dirt in seconds! And your parts come out warm and dry.

So designed that the heating element is in no danger of damage from dropped parts or insulated by settled residues, Bar-L Degreaser cleans anything that will fit into the solvent drum!

Economy of operation is assured by a record of trouble-free service. Almost 100% recovery of the solvent is made possible by the design of the condenser which returns the solvent to the boiling chamber. Continuous, high production is a fact with Bar-L!

If your requirements indicate tanks larger than the standard 55 gallon drum, several units may be used together in larger tanks.

*Literature on standard degreasers and information on custom machinery is yours for the asking.*

Write or wire today!

*Manufacturers Processing Co.*

METAL CLEANING CHEMICALS AND EQUIPMENT

1360 HILTON ROAD DETROIT 20, MICHIGAN

**A. E. S. 40th ANNUAL CONVENTION, Benjamin Franklin Hotel, Philadelphia, Pa., June 15 to 18, 1953.**

Appointment of **ROBERT W. JEFFERY** as general sales manager of the Currier Company, Oakland, Calif., has been announced by Farnsworth Currier, president of the firm.

Formerly manager of infra-red sales for Fostoria Pressed Steel Corporation of Fostoria, Ohio, Mr. Jefferey is a graduate of Carnegie Institute of Technology and a registered engineer. During World War II he served at Wright Field in research and development of electronic and infra-red devices.

## MEETINGS

**THE MASTERS' ELECTRO-PLATING ASSOCIATION, INC.,** has announced its 35th Annual Banquet to be held at the Waldorf Astoria in New York City on Saturday, May 9, 1953. Attendance will be by invitation only. Cocktails will be served from 6 to 8 P.M. followed by a banquet. A Banquet Journal will be published in connection with the event.

Complete information concerning the banquet may be obtained from S. C. Taormina, executive secretary, the Masters' Electro-Plating Assn., Inc., 59 E. 4th St., New York 3, N. Y.

---

A three-day conference to discuss the vast range of basic materials available to manufacturers will be held at the Hotel Roosevelt, New York, June 16-18, it has been announced by Clapp & Poliak, Inc., New York. The conference will supplement the first **EXPOSITION OF BASIC MATERIALS FOR INDUSTRY**, previously announced, which will be held at Grand Central Palace, New York, June 15-19.

The combined events will provide the first clearing house of information ever attempted for the entire field of materials for hard goods manufacturing. Heads of more than 20 leading companies have formed a board of sponsors for the show and conference. Don G. Mitchell, president, Sylvania Electric Products, Inc., is chairman of this board.

At the same time it was announced that Theodore C. DuMond, editor, "Materials & Methods," will serve as general chairman of the first conference. Morning sessions of the three-day meeting will be devoted to the broad, general aspects of material selection, while afternoon sessions will be given over to the technical, engineering considerations of the properties of new and old materials.

---

A preview of the **A.E.S. 40TH ANNUAL CONVENTION**, to be held at the Benjamin Franklin Hotel, Philadelphia, June


**MASKING TAPE**
DIE-CUT TO YOUR EXACT SPECIFICATIONS FROM
SCOTCH BRAND
INDIVIDUAL PIECES • ANY SIZE OR SHAPE
*For quick, accurate masking operations.*
PHONE OR WRITE **PANOCO**
505 Carroll St., Brooklyn 15, N.Y.

*For a real good polishing job use*
**Keystone TURKISH Emery**
FRESH SUPPLY AVAILABLE
KEYSTONE EMERY MILLS *Write for Sample* 4316 Paul St., Phila., Pa.

15-18, 1953, outlines a few of the many events of interest.

**Sunday, June 14th,** will be registration day at the Benjamin Franklin Hotel. Members will be able to sign in at the hotel and register for the convention in the leisure of Sunday afternoon.

**Monday, June 15th,** will see the formal opening of the meeting with a general welcome by Chairman Samuel Heiman, to be followed by the opening address. On Monday afternoon the technical program will be launched. All sessions will adhere to a schedule to permit an equal time distribution for presentation and discussion of each paper. The International Fellowship will play host to the membership on Monday night with the annual Open House, a colorful affair known for good food and good fun.

On **Tuesday** morning the Technical Session will be devoted to problems and developments in chromium plating. Afternoon sessions will be devoted to papers on cyanide decomposition and removal, plus a paper on the study of the effect of abrasive polishing on nickel. A new technique on plating molybdenum will also be presented. The morning session will be preceded by the annual Secretaries Breakfast and by the Speakers Breakfast. The Golf Outing is being held at the Merion Country Club Tuesday afternoon. This club is unique in that there are two complete courses, one for low handicap players and one for golfers of average skill. A film on "Corrosion in Action" will be presented on Tuesday evening. This is also the traditional time for suppliers to hold open house. A very informal evening but one of the best.

**Wednesday** there will be just one technical session; this will be in the morning. The Philadelphia Branch is understandably proud of the outing it has arranged for Wednesday afternoon. The "Delaware Belle" has been chartered for the exclusive use of the Electroplaters. There will be a catered lunch with organized entertainment and unorganized loafing as the boat cruises along the Delaware River. In the evening there will be an open question and answer session led by a panel made up of all of the speakers for the week. This promises to be a most active and enlightening session.

**Thursday's** technical session will be turned over to the AES Research Committee for the presentation of a series of papers and a report on the current research program. The social highlight of the Convention will be the Thursday night dinner and grand ball. An evening of food, fun, friends, and fine entertainment. It should be noted that plant visitations are scheduled for all four days of the Convention. The program is shaping up well and covers a wide variety of plants including job shops.

## SOCIETIES

Lawrence J. Hay

**LAWRENCE J. HAY,** president of Plating Service Company, Chicago, was elected chairman of the Chicago Electro-Platers Institute at its 18th Annual Meeting. He succeeds Carl F. Hansen, Advance Tinning Company, Chicago.

Mr. Hay distinguished himself during his term as vice-chairman by heading the Institute's Exhibit Committee for the Industrial Finishing Exposition of 1952. He is a member of the American Electroplaters' Society and well known for his untiring efforts in support of the finishing industry.

The Institute, which represents 100 custom electroplating shops in the Chicago trade area, also elected Charles E. Jensen, Jensen Plating Works, vice-chairman and Robert L. Giesel, Adolph Plating, Inc., secretary-treasurer. Elected to the Board of Directors were: William G. Bott, Aetna Plating Works; Michael Mitchell, Grunwald Plating Co.; John Lietz, B. Mercil & Sons Plating Co.; Dominic Pacenti, Metal Processing Co.; R. V. Leonardson, Micro-Deburring Co.; and past chairman, Hansen.

## NECROLOGY

**EDWARD S. BASSETT,** 83, former president and director of Cowles Chemical Company, died March 9 at his home in Cleveland Heights, Ohio. Mr. Bassett was born in New Haven, Connecticut and had been associated with Cowles since 1918 when he became a director. In 1926 he was appointed general manager, and

in 1930 was elected president, serving in that office until 1938. At that time he became chairman of the board and served until 1941 when he retired from that office but retained his membership on the Board and continued to serve the company as secretary.

The development of Cowles Chemical Company in the detergent field took place under Mr. Bassett's leadership. He was well known throughout the laundry and soap industries, being instrumental in the founding of the Laundry and Cleaner Allied Trades Association, serving as treasurer of that organization for a number of years.

At the shareholders meeting of the Cowles Chemical Company on April 8, 1952, when Mr. Bassett announced his retirement, a resolution of affection, admiration and respect was voted in appreciation of his many fine contributions made during the thirty four years of his valuable service with the Company.

Mr. Bassett is survived by his wife, Helen Chase Bassett, his daughter, Mrs. Arthur Loesser and his son, Charles C. Bassett, vice president and director of sales for Cowles.


Park No. 290

BLACKENING SALT

Black Oxide finishing for rust resistance and decorative parts. Speedy black coating in water solution with no electric current. Permanent black finish on ordnance parts, tools, aircraft, bearing races. Dazzling black decorative finish for television cameras, business machines, hardware, metal screens and machine parts. Excellent bond for paints and enamels. Simple one bath operation. Write for bulletin H-16. Park Chemical Co., 8078 Military Ave., Detroit 4, Mich.


# meetings

## OF INTEREST TO FINISHERS

**Apr. 12-16. 103rd Meeting, The Electrochemical Society,** Statler Hotel, New York, N. Y.

**Apr. 13-14. International Association of Electrotypers and Stereotypers, Inc., 1953 Spring Conference,** Hotel William Penn, Pittsburgh, Pa.

**Apr. 18. Annual Technical Session and Banquet, Boston Branch, A. E. S.,** Hotel Statler, Boston, Massachusetts.

**Apr. 18. Annual Educational Session and Banquet, Cleveland Branch, A.E.S.** Carter Hotel, Cleveland, Ohio.

**Apr. 18. Dayton Branch, A.E.S., Annual Educational Session and Dinner Dance.** Biltmore Hotel, Dayton, Ohio.

**Apr. 18. Rockford Branch, A.E.S., Eleventh Annual Educational Session and Banquet,** Faust Hotel, Rockford, Ill.

**Apr. 25. Milwaukee Branch, A.E.S., Annual Educational Meeting.** Schroeder Hotel, Milwaukee, Wisconsin.

**Apr. 25. Indianapolis Branch, A.E.S., Tenth Annual Educational Session and Dinner Dance,** Antlers Hotel, Indianapolis, Indiana.

**Apr. 26. A. E. S. Thirteenth Regional Meeting,** Hotel Taft, New Haven, Conn.

**Apr. 27-28. 29th Meeting, The Galvanizers Committee, American Zinc Institute,** Hotel Statler, St. Louis, Mo.

**May 9. A.E.S. Ninth New England Regional Meeting,** Kimball Hotel, Springfield, Mass.

**May 9. 35th Annual Banquet, Masters' Electro-Plating Association, Inc.** Waldorf Astoria Hotel, New York, N. Y.

**May 18-20. First Federal Convention, Australian Electroplating Industry,** under the auspices of the **Melbourne Branch, A.E.S.,** Hotel Federal, Melbourne, Australia.

**Jun. 15-18. American Electroplaters' Society, 40th Annual Convention.** Benjamin Franklin Hotel, Philadelphia, Pa.

**June 29-July 3. ASTM Annual Meeting,** Chalfonte-Haddon Hall, Atlantic City, N. J.

# Stripped plate is lost metal!

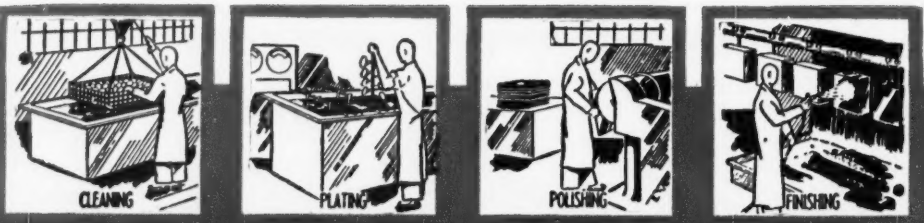
Impurities in the plating bath can cause poor adhesion . . . stripping of plated coatings . . . loss of expensive and scarce anode metals. But—you can make sure that solutions are free from impurities, by using Red Label Darco S-51.

## *Start* CLEAN . . . *Stay* CLEAN

Red Label Darco S-51 is highly activated, to assure complete adsorption of unwanted materials. A special manufacturing process removes the last traces of sulfides which can cause dull plating, poor adhesion and brittleness. Red Label Darco S-51 is easy to handle in the shop. It wets readily, and mixes quickly into slurries.

Order your stock from your local supplier today. And be sure to specify Red Label Darco S-51—the activated carbon especially made for cleaning plating solutions.

DARCO DEPARTMENT
**ATLAS POWDER COMPANY**
Darco General Sales Offices
**60 East 42nd Street, New York 17, N. Y.**
**Atlas Powder Company, Canada, LTD., Brantford, Canada**




# New • EQUIPMENT • MATERIALS • PROCESSES

## Truck-Mounted Flexible Shaft Machine

Franklin Balmar Corporation, Baltimore Woodberry, 11, Maryland, manufacturer of flexible shaft machines, through its N. A. Strand Division, has introduced a radically new type of portable mounting for its line of Strand Flexible Shaft Machines.

The new truck mount consists of a hand truck with wheeled rear axle and front skids. Users of this new mount secure maximum portability and eliminate possible damage to the flexible shaft machine caused by operators' habit of pulling the machine by the flexible shaft from point to point.

The flexible shaft unit itself is mounted on the deck of the truck in such a position that one operator can easily push the unit from place to place by merely pressing down on the handle to lift the front skids from the floor. The handle of the mount is equipped with a fixed clamp that holds the handpiece and tool of the flexible shaft unit. Thus, the equipment can be used as a fixed bench portable tool. The deck of the truck itself is fitted with a metal box for carrying a complete set of tools and attachments along with the machine.

The rear wheels of the truck are equipped with ball bearings and rubber tires to give smooth rolling even on rough flooring. In the photograph shown here the truck mounted unit is equipped with a "Strandflex" 4-Speed Gear Drive Flexible Shaft Machine. The power unit for the flexible shaft machine is mounted in a yoke, providing a turning radius of a full 360 degrees.

Truck-Mounted Flexible Shaft Machine

## Magic Dry

Magic Dry, an addition agent added to rinse water in which electroplated parts or barrel tumbled parts are dipped following processing has been announced by the Mitchell-Bradford Chemical Co., 2446R Main St., Stratford, Connecticut.

According to the manufacturer, the addition of one to two ounces of Magic Dry per ten gallons of hot rinse water will prevent staining of electroplated or barrel finished parts. Also claimed for Magic Dry is the prevention of rusting on metal parts which have been tumbled but not electroplated.

## Nubelon S

Development of a stain-resistant, highly flexible baking enamel substantially harder than previous standard enamels has been announced by the Glidden Company, Cleveland, Ohio.

The new product development was introduced at the company's National Industrial Sales Conference in Cleveland by A. D. Duncan, Glidden vice president and general manager of the company's paint and varnish division.

Mr. Duncan said that the primary problem to be overcome during the five years of development work on Nubelon S was the natural tendency of organic finishes to lose flexibility with increase of surface hardness and resistance to abrasion, and, conversely, the loss of surface hardness with an increase in flexibility.

It has been demonstrated that fence wire, coated with Nubelon S, can be fabricated into fencing without chipping the surface, the manufacturer states.

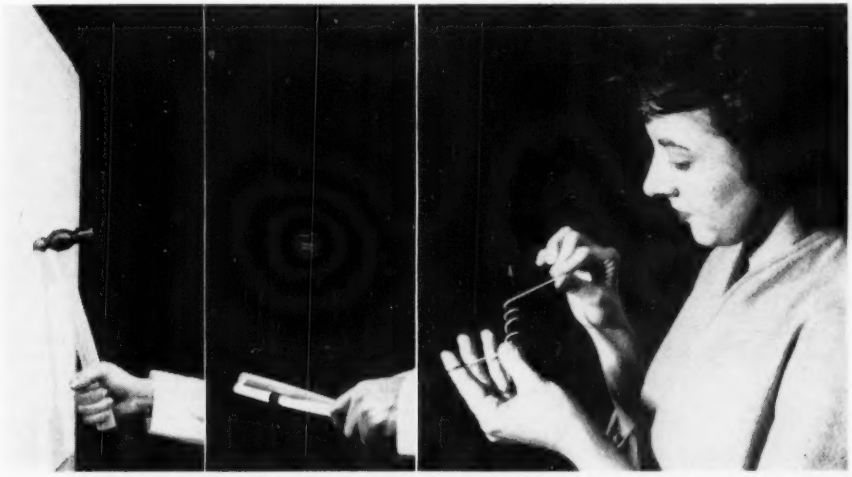
Research chemists overcame the problem with an unusual modification of silicone resins. The result was a baking enamel hard enough for use on home appliances or other equally demanding applications, yet flexible enough to offer the possibility of application before the metal is formed.

Severe laboratory tests attest to the success of the new finish.

It resisted staining of dyes, including mustard pigmentation—one of the most annoying stains with which home appliance manufacturers must deal—and lipstick, coffee and fruit acids.

No appreciable corrosion resulted after fog tests of 20 per cent salt water solution for 4,000 hours at 95 deg. F.

Comparative properties of one-coat Nubelon S (No. 4221-A White) and high quality two-coat alkyd amine systems



(Left) Despite blows from a heavy hammer, Nubelon S clings to metal without chipping or cracking. It combines extreme flexibility with an excellent surface hardness. (Center) Flexible, yet hard, the silicone modified baking enamel adheres to the surface of test pipes without cracking in spite of blows strong enough to dent the metal. (Right) A wire coated with Nubelon S is spiralled about a pencil with no cracking of the finish.

| | Resistance Considered Excellent (X) | NUBELON-S | Alkyd-Amine |
|---|---|---|---|
| Hardness (pencil) | 6-7H | X | G |
| Abrasion (Taber factor) | 30 | X | F |
| Flexibility (60 in./lb. impact) | No cracking | X | G+ |
| Salt Spray (inches creepage in 400 hours) | 0.03 | X | F |
| Humidity (4000 hours) | No change | X | G |
| Hot Soap 1% Rinso (@ 160 deg. F.) | 700-1000 hour | X | F |
| Hot Grease Vapors (@ 500 deg. F. for 8 hours) | No change | X | P |
| Stain (all types household) | No change | X | G |
| Heat (350 deg. F. 16 hours)—Discoloration | No change | X | F |
| Gloss | No change | X | G |

X = excellent, G = good, F = fair, P = poor

are shown above. The value given for "alkyd amine" is the best result obtained in each test for any system of this type.

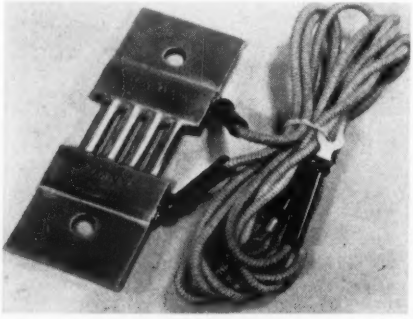
In addition, Nubelon S showed excellent resistance to crude tall oil, carbon tetrachloride, formaldehyde, 63 per cent ammonium nitrate (fertilizer solution) and 2-ethyl hexoic acid.

The extent to which Nubelon S maintains its color under severe conditions and its extreme hardness and adhesion make it especially valuable as a white appliance finish. It was pointed out that the new coating requires curing at 425 deg. F.

Nubelon S is being offered in various shades of whites, grays and yellows as well as blue, tan, green and red .

## Direct Current Ammeter Shunt

Rapid Electric Company, 2881 Middletown Road, Bronx 61, New York, has announced a complete line of direct current ammeter shunts designed for use with 50 millivolt meter instruments. Sizes range from 150 to 10,000 amperes. These units are calibrated to within ½ to 1 per cent accuracy and are complete with 10 foot calibrated leads. Each shunt is designed to maintain its accuracy at 100 per cent overload, thereby making it applicable for use at twice the rated capacity with 100 millivolt instruments. All units are constructed with solid copper ends and solid manganum rods between copper. Due to the extra heavy duty construction and the extremely low temperature coefficient of the metal alloy, perfect accuracy is maintained when used at maximum capacity and at ambient temperature up to 350 deg. F. Force fitting of over ½ inch of manganum rod into both metals has produced an instrument that is not only impervious to extreme shock but will resist parting force of many times its ampere rating in pounds.



Direct Current Ammeter Shunt

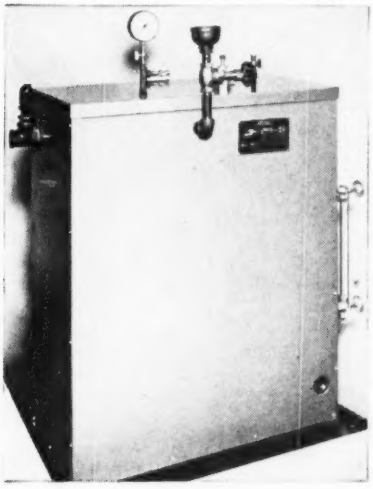
## D'orium

Possibilities for countless new uses for aluminum have opened up with the recent introduction of a new process called D'orium by Miracle Finishes, Inc., 10 Water St., Brooklyn 1, New York.

D'orium, licensed to Miracle Finishes, Inc., exclusively in the United States by Coloral, S. A. of Switzerland, gives aluminum a gold finish which is said to be so realistic that it is almost impossible to detect the difference by eye alone between it and genuine gold. Six shades of gold can be achieved, as well as many other colors, all of which have a high luster and are non-corrosive, it is claimed. The finish will not tarnish or discolor and since it is an integral part of the metal itself it can't chip, peel or crack.

## Steam Generator

A line of electrically operated steam generators utilizing a completely new conception of electric boiler design has been announced by Livingstone Engineering Company, Worcester, Mass. Identified as Series ABC, they embody the results of intensive engineering research directed primarily toward the development of more compact units for installation in press rooms and factories where floor space is limited. The Electrode steam generator, unlike those utilizing resistance heating elements can be designed to operate on various voltages at constant amperage, so that the KW rating, heating capacity and steam output vary in direct proportion to the voltage. Utilizing this principle, these new Boilers are designed for 220, 440 or 550 volts but they offer important advantages to those purchasers who have 440 or 550-volt power.



Electrically Operated Steam Generator

Series ABC steam generators operating on 440 volts require less than one-half sq. ft. of floor space per boiler h.p. Added to the space, and weight advantages, the manufacturer points out: that speedylectric ABC Boilers operate at 98 per cent efficiency with unity power factor; that they are entirely free from low water danger and fire hazards; that there are no tubes to scale or burn out, no feed water treatment required, no daily blowdown; and that maintenance costs are negligible. The ABC Boilers are offered in standard sizes up to 60 B.h.p. and pressures up to 500 p.s.i.

## Industrial Type Batch Oven

Blue M Electric Co., 306-08 W. 69th St., Chicago 21, Ill., has announced a series of fully automatic extra heavy duty, industrial type batch ovens. The ovens feature automatic wattage control and balanced heat with a temperature range of 100 deg. F. to 600 deg. F. Another feature is the diagonal forced air flow which permits heated air to be circulated from the sides, horizontally and vertically.

The ovens are available in three standard models, the dimensions of which are as follows: Model 16P, 24-inches wide x 48-inches high x 24-inches deep; Model 24P, 36-inches wide x 48-inches high x 24-inches deep; and Model 32P, 48-inches wide x 48-inches high x 24-inches deep.

All wiring is enclosed and complete, and conforms to N.E.C. Standards. The manufacturer recommends the ovens for coil and armature baking, aging, curing, drying, preheating, synthetic finish baking, preheating plastics, curing of coated plating racks, core baking, tempering, and silicone baking.

Electric Industrial Type Batch Oven

## Probrite CR-723

Promat Division, Poor & Company, 851 S. Market St., Waukegan, Ill., has developed two decorative plating processes for use on parts commonly having a copper-nickel-chrome finish. No nickel is employed in the Promat processes. One is designated as Probrite CR-723, a buffing grade deposit, for parts that can be color buffed after plating.

Both finishes can be deposited over steel or copper. They can be readily chrome plated. A Promat Sealer for use over the chrome plating prolongs life of the finish.

Brilliance of the finishes is reported comparable to copper - nickel - chrome. Protection of steel against red rust is claimed to be as high as 200 hours in a standard salt spray test when Probrite is chrome plated and sealed.

Technical data is available upon request to the manufacturer.

## Variable Speed Polishing and Buffing Lathe

Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich., has announced the development of a 10 h.p. variable speed polishing and buffing lathe. Designated as the Model 10-VRO, the variable speed polishing and buffing lathe has a speed range of 1,500 to 3,000 r.p.m. Speed may be changed while the lathe is in operation by turning the dial control.

Model 10-VRO 10 h.p. Variable Speed Polishing and Buffing Lathe.

## Vinsynite FS-3

An addition to the "Vinsynite" group of corrosion-resistant metal coatings has been announced by Thompson & Co., 1085 Allegheny Ave., Oakmont, Pa. Designated as "Vinsynite FS-3," the new product is a stable type treatment formulated especially for roller coating on ferrous metals.

The manufacturer states that it is yellow in color and, when baked as recommended, provides outstanding adhesion on ferrous metals and excellent resistance to all types of exposure. Like other types of Vinsynite, FS-3 is intended for use under top coats but will itself protect surfaces for short periods of time. In effect it pretreats the metal chemically and covers it with a thin vinyl primer film in one operation. According to the manufacturer, in addition to its superior adhesion and corrosion-resistant qualities, its use can result in increased efficiency of coating operations for a wide variety of steel products, where roller coating equipment is used in finishing.

Other types of Vinsynite are available for dip, spray and brush coating all metals, including aluminum, steel and copper, as well as glass and many kinds of plastics.

## Aluminum Oxide Compositions

The Hanson-Van Winkle-Munning Co., Matawan, N. J., has announced a series of aluminum oxide compositions for the coloring operation in finishing zinc-base and aluminum die castings. Laboratory tests and supporting field data are reported to indicate that these aluminum oxide compositions give castings of these metals the desired luster or color faster than was previously possible with compositions of the same grade of fineness.

The manufacturer reports that the aluminum oxide compositions may also be used in steel and stainless steel finishing.

*Brush C deburrs bottom of slot*

# Push-button brushing deburrs 1400 parts per hour

**The Problem** here was to remove feather burrs from a machined slot in aluminum ammunition components . . . *fast.* By a hand method, *output was only 360 per hour* and results were not uniform.

With the help of the **O**sborn **B**rushing **A**nalyst, the company built the rotating fixture shown above, equipped with three Osborn Master Wheel brushes. Parts are placed on pins on clockwise-rotating table. Brush A, rotating clockwise, deburrs the corner of one side of slot. Brush B, rotating counterclockwise, deburrs the other side corner. Brush C deburrs the bottom corner. Slots come clean and smooth . . . *at a rate of 1400 per hour!*

Find out how power brushing can improve *your* product deburring, cleaning and finishing! Call the **OBA** or write *The Osborn Manufacturing Company, Dept. O-4, 5401 Hamilton Avenue, Cleveland 14, Ohio.*

*Brushes A and B deburr side corners. Brushes rotate at 3450 rpm.*

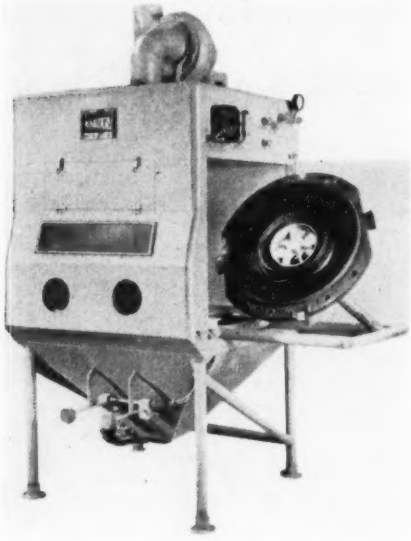
Osborn Brushes

**OSBORN POWER, MAINTENANCE AND PAINT BRUSHES AND FOUNDRY MOLDING MACHINES**

## Jet Blast Liquid Abrasive Blasting Machine

R. W. Renton and Company, 764 Addison Road, Cleveland 3, Ohio, has announced a Jet Blast liquid abrasive blasting machine designed to clean, finish, burr, blend or etch a wide variety of dies, molds, tools and other parts. This new machine has been engineered for around-the-clock use without costly down-time for maintenance. The liquid slurry is drawn up by siphon injection and propelled from the blasting nozzle by means of a high velocity air stream. The only moving part within the cabinet is the blower which is used to ventilate the cabinet. Consequently, there are no critical wear points which might necessitate frequent servicing.

The Jet Blast machine features maximum versatility. It is designed to handle abrasives ranging from 60 to 5,000 standard screen size, and new design permits fast changeover of abrasive slurry. Reversible pump located beneath cabinet effects complete change in less than 5 minutes. A special method of maintaining the slurry in suspension permits higher concentration of abrasive at the point of work and thereby increases speed of operation.



Jet Blast Abrasive Blasting Machine

Size of abrasive particles, concentration of abrasives in solution, the distance between nozzle and work, and the supply of air pressure can be varied to produce the results desired. The Jet Blast machine handles the most delicate cleaning problems without surface damage or dimensional alterations, it is claimed. It is particularly effective in removing rust, scale and other deposits, and the clean matte surface which it produces increases adherence of paint, porcelain, rubber or electroplated metals. It can effect any desired finish on any flat or irregular surface. Sharp edges are retained, and metal removal can be held to 0.0001 inch. This machine can be used for light burring, honing cutting faces, and for blending or removing directional grinding lines or tool marks on machined surfaces in order to reduce possible fatigue failure.

Because the Jet Blast machine is engineered for maximum simplicity, operators require little training. Work is inserted through access door on side of water-tight cabinet, and operator reaches in through gauntlet-protected armholes. Work is held in one hand or placed on work table, while abrasive stream is directed by other hand. Full control is exercised over operation by means of conveniently located padded knee pedals. One governs the flow of abrasive slurry from the nozzle, and the other regulates cleaning of light and observation port.

The Jet Blast machine is available from stock in three standard models and can be furnished in almost any size required. It can be equipped with a turntable to speed handling of pieces and can be furnished with up to eight fixed spray guns. In the larger models, the jets can be arranged to produce automatic or semi-automatic operation. Because the Jet Blast is compactly built, it is especially adapted to dual machine setup for production line operation. This permits the successive use of two sizes of abrasives, one for rough cleaning and the other for fine finishing.

---

## Chemical Resistant Coveralls

Feon Chemical Resistant Coveralls, manufactured by Filtration Fabric Division of Filtration Engineers, Inc., 155 Oraton St., Newark 4, N. J., are made from a high quality fabric, Vinyon-N,

Compact... Efficient... Automatically Controlled

GAS, STEAM OR ELECTRIC OVENS BY

KIRK AND BLUM

Your oven needs . . . large or small, batch or continuous production, for drying, baking or dehydrating . . . can be filled by KIRK & BLUM.

The small oven illustrated is shipped completely assembled, thoroughly tested and ready to operate. Installation is a one-two process: Spot in place . . . make connections . . . and you're ready for production. Write for booklet, "Industrial Ovens," showing typical installations.

**THE KIRK & BLUM MANUFACTURING CO.**

**3116 Forrer Street**
**Cincinnati 9, Ohio**

Lower portion of this gas fired oven completely contains blower and heater... in space that might otherwise be wasted. Horizontal recirculation of the heated air insures even heat, efficient operation.

For further information on any product mentioned in this issue—use the READER SERVICE CARDS between the covers.

for complete resistance to chemicals and commercial launderings.

Feon fabric, reportedly, is not affected by concentrated mineral acids and alkalies, and has very high resistance to a wide variety of inorganic acids, bases, and salts. It resists the temperatures and strong reagents used by industrial laundries, according to the manufacturer. It is also claimed to be immune to bacteria and mildew.

All strain points are bar-tacked for extra strength. Full rolled seams, double stitched with the same chemical resistant Vinyon-N thread, will not unravel.

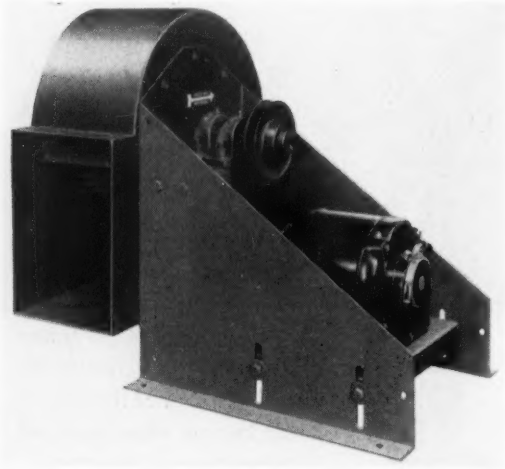
## Belted Junior Fans

The New York Blower Co., 32nd St. and Shields Ave., Chicago 16, Ill., has announced the availability of two belted junior fans, Nos. 76 and 91, which have been developed, according to the manufacturer, to meet the demand for a small adjustable speed V-belt fan, which is quiet in operation and with fan speed which can be adjusted in the field.

These units, equipped with slow speed wheels, are recommended by the manufacturer for laboratories and other enclosures which require quiet operation and where precise quantities of air are to be handled. The standard cast aluminum wheels (NAFM Type B, spark-resisting construction) may be replaced with steel wheels for fume exhaust conditions where aluminum is not suitable.

The V-belt drives have adjustable motor sheave giving speed adjustments of 30 to 50 per cent depending upon the motor selected. All drives are amply rated, having a drive service factor of at least 1½ times the motor horsepower. The motor platform is also adjustable for regulating belt tension after sheave adjustment.

The same type of welded steel housing is used for these junior models as in the larger ventilating fans. The fan shaft is turned, ground and polished, and normal duty ball bearings are used.



Belted junior fan in bottom horizontal discharge position.

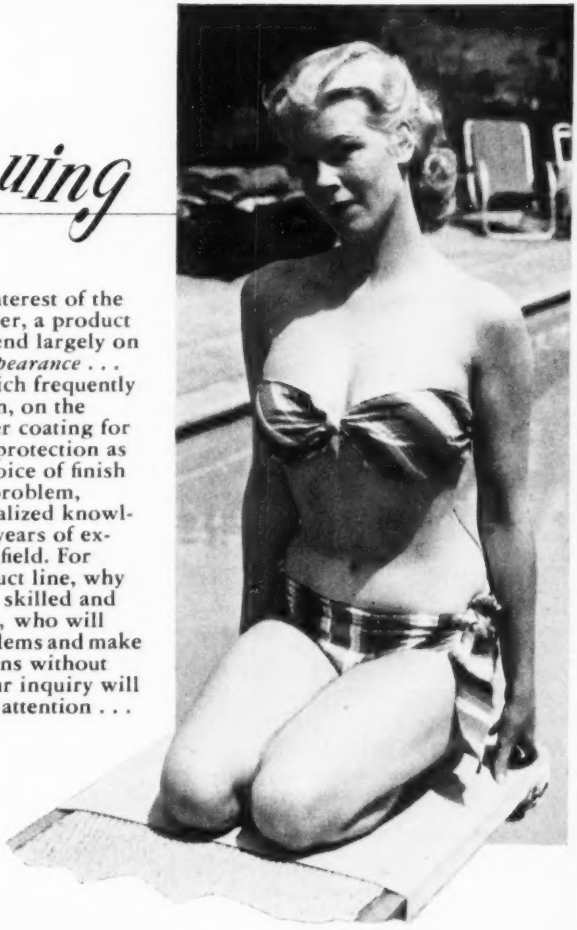
## Basic White Litho Coating

A Basic White for metals developed through a new and different technical approach by the Watson-Standard Co., 225 Galveston Ave., Pittsburgh 12, Pa., is claimed to have the outstanding properties of alkyd type coatings and the ease of handling of oleoresinous coatings. It is reducible with mineral spirits and may be tinted with either oleoresinous tinting colors or alkyd tinting colors. Color retention on initial baking or rebaking is outstanding and ease of fabrication is excellent, it is claimed. The surface of this white is stated to present a perfect background for printing, making it ideal for the lithography industry.

According to the manufacturer, basic white litho, code number 13-558, has been used successfully for exterior of cans, can ends, crowns and closures, metal toys, candy boxes, exterior of cannisters, and oil filters. It is available either as a toned or untoned white.

# *Intriguing*

To excite the interest of the prospective buyer, a product must often depend largely on the factor of *appearance* . . . a condition which frequently depends, in turn, on the choice of proper coating for beauty and for protection as well. Such a choice of finish is an exacting problem, requiring specialized knowledge and long years of experience in the field. For your own product line, why not consult our skilled and capable experts, who will study your problems and make recommendations without obligation. Your inquiry will receive prompt attention . . .



*Research, Quality, Service*

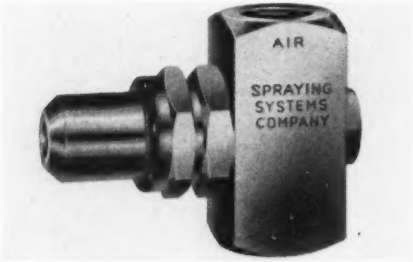
ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

*Affiliate*
GORDON BARTELS CO.
*Roller Coating Specialists*

*Manufacturers of Protective and Decorative Coatings*

## Pneumatic Atomizing Nozzle

A line of Pneumatic Atomizing Nozzles has been added by Spraying Systems Co., 3201 Randolph Street, Bellwood, Illinois,




Pneumatic Atomizing Nozzle

to its group of standard spray nozzles for industry. These Pneumatic Atomizing Nozzles, identified as series 1-J, are unique because of large capacities not available before in this type of nozzle. Operating at pressures from 6 to 90 p.s.i., such nozzles provide capacities ranging from over four gallons per minute to twenty gallons per minute. These Spraying Systems Co., Pneumatic Atomizing Nozzles are supplied either with shut-off needles (type 1-JN) or without shut-off needles (type 1-J).

## Iolyte Tanks and Ducts

Tanks and ducts are now being fabricated to specifications, without limitation as to size and shape, of Iolyte, a Fiberglas reinforced polyester laminate, by the Schori Process Div., Ferro-Co Corp., 8-11 43rd Rd., Long Island City 1, N. Y.

Iolyte is a chemical-resistant structural plastic, claimed to have the tensile strength of steel at one-fifth its weight. It is claimed to withstand higher temperatures than vinyls, rubber, polyethylene and so forth.

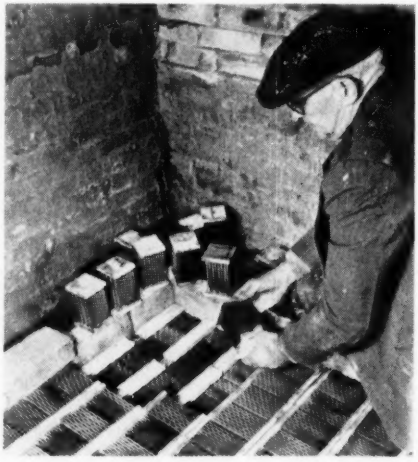
Since molds are not used in the production of Iolyte tanks they are not tapered, making the entire area available, and also resulting in speed and economy of manufacture. Ducts made of Iolyte are stated to be easily installed. They are especially recommended by the manufacturer for exhaust systems for handling corrosive fumes.

## Oxycat

An oxidizing catalyst manufactured as a block-shaped series of porcelain rods coated with a special catalytic agent has been developed by Oxy-Catalyst, Inc., Wayne, Pennsylvania. The product serves the double purpose of removing fumes formed in painting, drying, and baking processes, for example, and at the same time producing heat energy which can be used in the plant from which the fumes are emanating.

Each Oxycat unit, measuring 5½ inches long, 3⅛ inches high, and 3 inches wide, is made up of two thick porcelain plates, and between them a porcelain spacer bar and 73 coated porcelain rods. These catalyst units are stacked, in the required number, side by side and one on top of the other, in the exhaust stacks of furnaces, ovens, or power plants.

The waste gases flow across the Oxycat rods. Combustion of the gases occurs at the surface of these rods coated with a 0.003 inch film of catalytic agent—catalytic alumina and platinum alloy. The heat released by the burning of the gases can in most cases be channeled for useful purposes.



A company workman at Enamelstrip Corporation puts the finishing touches on a bed of Oxycats which helped the Allentown, Pa., firm solve a serious air pollution problem. Installed here in an exhaust stack above the company's main coating line, the Oxycats oxidize solvent fumes rising from a paint baking oven. Since the catalyst generates large quantities of heat in the process, it literally has made the plant run on its own smells.

# *for* { *Real Buffing . .*
*Mirror Finish . . .*
*Easier Cleaning . . . .*

## *SPEEDIE* Stainless Steel and Chrome Compositions Do the Job *Every* Time!

And they do the job RIGHT! You can't beat the best—and you get the *best* when you use SPEEDIE Stainless Steel and Chrome Compositions!

Have you an unusually tough buffing operation on a nasty piece of steel? Try SPEEDIE No. 471. It cuts and colors in one operation.

Job-proved through the years, SPEEDIE Chrome Compositions are *unmatched* for removing burnt chrome or producing a fine mirror finish. All SPEEDIE Stainless Steel and Chrome Compositions are 100% saponifiable. The work is easy to clean so you save time and labor.

You'll also get perfect results with other SPEEDIE Compositions—Tripoli, Nickel Finish, Satin Finish, Emery Cake and Grease Stick.

Write—on your company letterhead—for illustrated catalog today!

***Polishing Room Supplies and Equipment***

**BP**

**THE BUCKEYE PRODUCTS CO.**
7038 Vine Street Cincinnati 16, Ohio
Cable address: Buckprod

## Eezy Stak Baskets

For manufacturers who have problems with bulk handling of small parts or in-process storage, expanded metal baskets,

Eezy Stak Baskets

made by Wire & Iron Products, Inc., Detroit, should prove a boon.

Called "Eezy Stak," the baskets are made of sturdy steel frames welded to one-piece, pre-formed expanded metal panels. Full or empty, the baskets stack, one on top of another, to save space and facilitate handling. They have comfortable handles for lifting or hand carrying, where necessary.

The flattened expanded metal used in Eezy Stak baskets is furnished by Wheeling Corrugated Company in two mesh sizes: ¼-inch mesh that will hold ⅛-inch diameter parts; and ½-inch mesh that will hold ⅞-inch diameter parts. Standard size basket is 21½ by 13⅛ by 6 inches. Eezy Stak baskets are zinc plated for rust resistance.

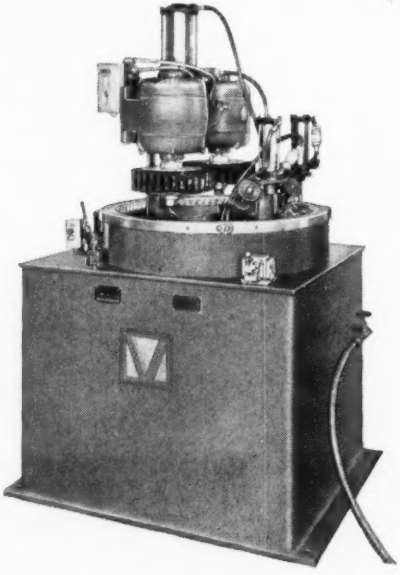
## Cottentex

A finely ground cellulose fibre material with exceptionally high absorbency, called Cottentex, is now available from Cottentex Mfg. Co., 403N E. Wells St., Milwaukee, Wisconsin, for use in degreasing and drying operations employing tumbling mills. Absorbing more than eight times its own weight, Cottentex is claimed to do a fast, thorough job of absorbing oils, grease or any liquid from metals, plastics or any type of composition. According to the manufacturer, it is particularly adapted for cleaning and degreasing ball, roller and needle bearings and other parts which can be processed in a tumbling mill. Cottentex is light in weight, economical, fast- acting and soft so as to protect parts while in the tumbling process.

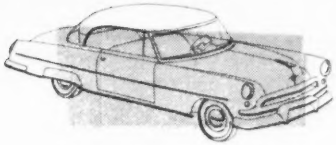
## Turntable Type Deburring Machine

A turntable type deburring machine, named the TT-261, for rapid deburring of compressor stator rings, half rings or other number of ring sections of jet turbines, has been developed by Grinding & Polishing Machinery Corp., 2530-G Winthrop Ave., Indianapolis 5, Indiana.

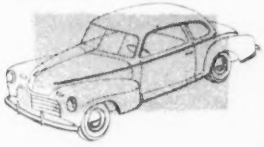
Provision has been made for holding

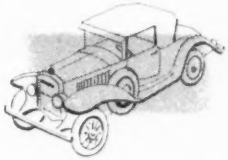


Turntable Type Deburring Machine



# This year, as in every year, there'll be PARKER PRODUCTS on almost every car you see!





**BONDERITE** — corrosion resistant paint base

**PARCO COMPOUND** — rust resistant

**PARCO LUBRITE** — wear resistant for friction surfaces

*Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.

**PARKER RUST PROOF COMPANY**
Detroit 11, Michigan

Since 1915—leader in the field

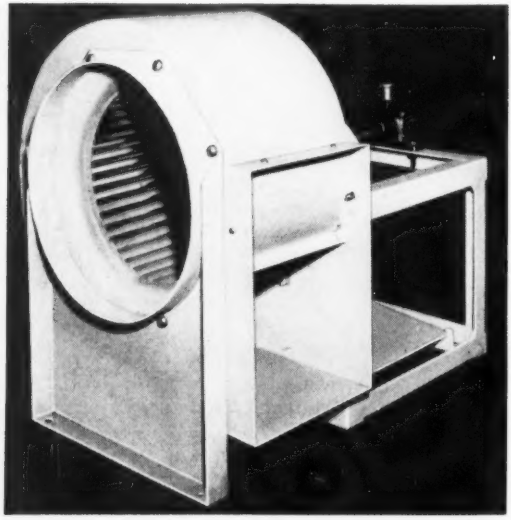
ring sections to very accurate diameter during the deburring operation by interchangeable holding fixtures for different diameters of work pieces. Modifications of this design can be readily adapted for deburring other circular work pieces.

According to the manufacturer, the experience of an aircraft engine company using the machine indicates a complete time cycle of one minute for loading, deburring and unloading a pair of 32 inch diameter aluminum half rings. Previous hand methods of deburring required an eight hour day for a set of 24 half rings. This machine, it is claimed, does the job in 12 minutes.

## Blower Exhauster

A compact blower-exhauster claimed to solve ventilating, smoke, heat and fume removal problems for industrial plants, hotels, restaurants, hospitals, schools and other institutions is now available from the Brundage Company, 576 North Park St., Kalamazoo 11, Michigan.

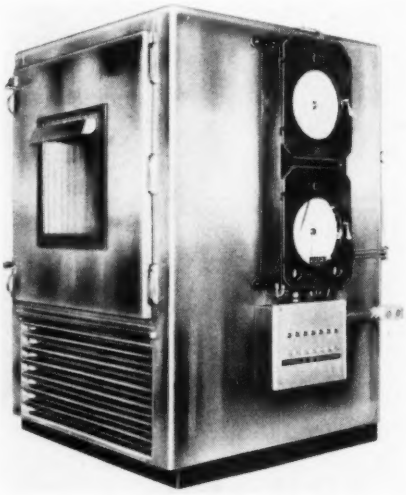
This exhauster, claims the manufacturer, does not require a cabinet or complicated superstructure. It can be fastened directly to a wall, up out of the way. The angle of discharge can be adjusted to any degree. Motor, bearings and all other parts are designed for long-lived efficiency and quiet operation.



Brundage Blower-Exhauster.

## Temperature-Humidity Test Chamber

To supply industry with a standard line of environmental test chambers for conducting temperature-humidity tests, Tenney Engineering, Inc., 26 Avenue B, Newark 5, N. J., has standardized on five basic chamber types. This standardization permits purchasers to select chambers from existing specifications and eliminates extra cost of custom built models. These chambers automatically maintain humidity from 20 to 95 per cent through a temperature range of 35 to 185 deg. F. Minimum dew point is 33 deg. F.



Temperature-Humidity Test Chamber

The chambers, known as the Tenney TH Series, have the following inside dimensions: (1) 22 x 19 x 48 inches, (2) 42 x 18 x 48 inches, (3) 36 x 21 x 36 inches, (4) 42 x 24 x 48 inches, and 48 x 24 x 48 inches. Models 1 and 3 have one door; the others have two. Common to all models are

# HARSHAW Iso-Fil No. 1

## *best of all-fibrous filtering mediums*

- ★ Made of 100% pure fibrous cellulose
- ★ Exact fibre lengths maintained, permitting "sharpness" of filtration
- ★ Blended by a new-type machine which insures uniformity
- ★ Forms easily-cleaned layers which do not "slough-off"
- ★ Provides efficient depth filtration
- ★ Quickly forms a pre-coat on either screen-type filters or cloth and paper dressed presses
- ★ Rapid forming of pre-coat offers tremendous advantages in "setting"
- ★ Eliminates clogging of cloth and screen wires
- ★ Fibrous structure maintains steady flow through the filters
- ★ Especially adapted to low-cost clarification work

**NOTE: When Iso-Fil No. 1 is used, the filter is "set" by using only ½ oz. of material for each square foot of filter surface, rather than the usual 4 oz. per square foot recommended when using diatomaceous earth. Usually no addition of filter material is required on the run.**

***Order Iso-Fil No. 1 Through Any Harshaw Sales Office***

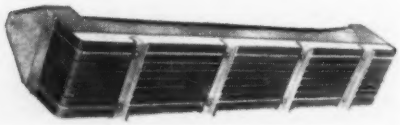
**THE HARSHAW CHEMICAL CO.**
**CLEVELAND 6, OHIO**

CHICAGO • CINCINNATI • CLEVELAND • DETROIT • HOUSTON
LOS ANGELES • NEW YORK • PHILADELPHIA • PITTSBURGH

are accurately calibrated indicating thermostatic controllers, air circulating blowers for uniform movement of air, and stainless steel interior and exterior paneling.

## Infra-Red Heating Panel

An infra-red heating panel which heats by direct radiation and which is designed for processes requiring baking, heating, or drying has been announced by Syntron Co., 309 Lexington Ave., Homer City, Pa.



Syntron Infra-Red Radiant Heating Panel

The panel consists of from two to eight thin, flat, electric-strip heater elements securely mounted to a steel box-type frame. According to the manufacturer, the panel throws a flat, uniform, radiating pattern of unusually high intensity. The panel, it is claimed, heats up almost instantaneously, full production being possible in approximately 60 seconds after the current is switched on.

The heating elements are made up of a resistor wire sinuated into a flat ribbon, insulated from the sheath by uniform strips of a metallic oxide material which is claimed to resist fluxing and prevent grounding or fusing of the wire to its sheath. The flat, thin strip design of the element is said to produce a continuous radiating surface which permits lower sheath temperatures with more watts per square foot. Layers of thermal backing are used for insulation behind the heating element.

## Neoprene Anti-Corrosion Coating

A specially formulated Neoprene Anti-Corrosion Coating has been introduced by the Pennsylvania Salt Manufacturing Co., 1000 Widener Bldg., Philadelphia 7, Pennsylvania, for application in maintenance painting and coating operations. The special formulations, added to Pennsalt's regular line of corrosion resistant paints and cements, are NeoCoat and NeoPrime A (for all surfaces except concrete) and NeoPrime B (for concrete surfaces).

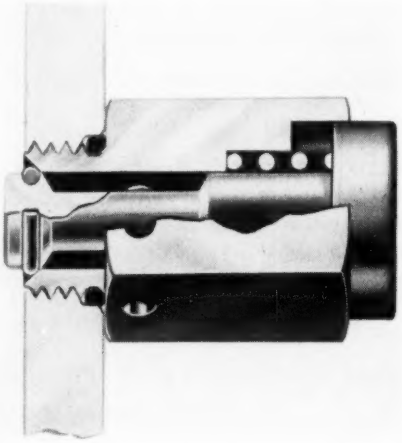
The manufacturer states that NeoCoat is a true plastic in which the accelerator is included in the product so that the addition of accelerator prior to application is not necessary. Polymerization takes place after the coating is applied.

NeoCoat was developed as a result of Pennsalt's tests and experience in its own plants. A coating thickness of at least five mils was found to be necessary in order to cover welds, beads, seams, and edges of tanks and other processing machinery effectively. For reasons of economy, NeoPrime and NeoCoat were formulated so that the proper coating thickness could be attained with three applications or coats.

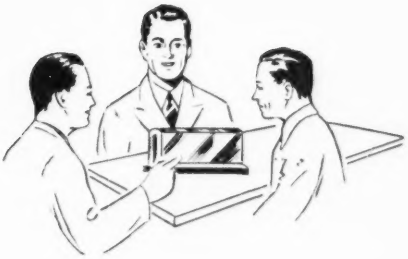
## Manual Release Valve

A manually operated "release" valve, comprised of only four working parts, and designed to allow rapid escape of air pressure systems, bleeding of air out of fluid systems, and so on, has been developed by James-Pond-Clark, 2181 East Foothill Blvd., Pasadena 8, California.

Employing an "O" ring sealing principle, the design assures dead-tight sealing and long trouble-free operation. The valve is normally held closed by a spring when the manual pressure is released. It is



Manual Release Valve



## Is it a Stainless Steel finishing problem?

Specify NEW **BLACK MAGIC S. S.**

Now there will be no question as to how a Stainless Steel piece should be finished —

the answer .... **BLACK MAGIC S. S.**

Here is a dependable, economical, ONE bath, ONE salt, LOW temperature blackening process which produces an adherent and lustrous quality black finish in a matter of a few minutes.

remember .... if it's Stainless -- specify **BLACK MAGIC S. S.**

Also an ideal finish for cast and malleable iron.

Send samples for processing. A blackened part of your manufacture will convince you of the advantageous characteristics of BLACK MAGIC for Stainless Steel.

**Mitchell-Bradford**

**THE MITCHELL-BRADFORD CHEMICAL CO.**
2446D Main St. Stratford, Conn.

**QUALITY PRODUCTS OF CHEMICAL RESEARCH**

designed to provide quick operation when actuated, yet close when pressure is released. Overall external length of the standard valve is less than 1 inch with a $\frac{13}{16}$-inch hex; $\frac{7}{16}$-18 straight threads are standard and permit normal installation with either an "O" ring or gasket seal. This new product is normally manufactured of anodized aluminum which provides excellent resistance to oxygen and most corrosive atmospheres.

"Press, it's open—release, it's closed dead-tight" is the manufacturer's descriptive phrase for the new development.

## Lucoflex Industrial Units

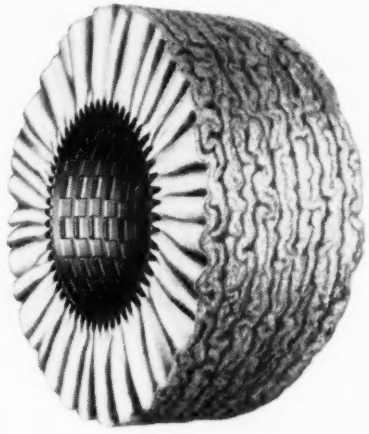
Demonstrating the use of Lucoflex in electroplating and general chemical industries are such products as a chemical valve, chemical hoods, chemical buckets, chemical-resistant sinks, and a ventilating fan, produced by American Lucoflex, Inc., 1 East 57th St., New York 22, N. Y.

Lucoflex is a non-flammable, unplasticized rigid polyvinyl chloride plastic, claimed to have outstanding thermal, chemical and physical properties. Free of taste, odor and toxicity, Lucoflex is stated to possess dimensional stability, chemical resistance, serviceability, good physical and electrical properties, and versatile fabrication characteristics. It is available as a bulk resin which may be compression and transfer molded and extruded, and also in the form of sheets, rods and tubes which may be machined, formed, welded and cemented.

Lucoflex Ventilating Fan

## Automatic Centerless Buff

The manufacturer claims that strength, precision and speedy buff assemblies are provided by the exclusive ring construction, a feature of the Automatic Centerless Buffs, manufactured by American Buff Co., 2414 S. La Salle St., Chicago 16, Illinois. The rigid steel ring, which securely grips the buff cloth in its channel, is designed to retain its strength and perfect circumference under the most severe running conditions.



Automatic Centerless Buff

Pre-assembly of the Automatic Centerless Buff is speedily accomplished with the use of 2 tubes, each one welded to the inside of an Automatic Buff Flange. One tube is fitted telescopically into the other, and the set-up of Buffs is tightly secured between the 2 flanges. The Buffs are held together in a compact, non-shifting set-

# Rhodium Plating

Rhodium is one of the six platinum group metals. It is hard and has an untarnishable brilliant white color. In electroplating, it produces beautiful results and is widely used for this purpose in jewelry — even precious metal jewelry. Its high reflectivity makes it excellent for mirrors for motion picture projectors and similar purposes. With restrictions upon usual plating metals, rhodium is the logical alternative for plating optical mounts, contacts for communication equipment, radar components, pen and pencil sets and a host of like objects.

**Commercial rhodium plating was developed in our laboratories.**

## BAKER & CO., INC.

113 ASTOR STREET, NEWARK 5, N. J.

NEW YORK • SAN FRANCISCO • CHICAGO

**Let us send you "Directions for Rhodium Plating."**

up by the Automatic Tight-Locking Rings.

Cool-running and long-wearing, Automatic Centerless Buffs are "air-conditioned" throughout, according to the manufacturer. The regularly spaced pleats, securely held by steel gripper teeth on the ring, radiate with perfect precision from a center, thus imparting a regular cooling action. Adjustable controlled ventilation is available with specially designed air vent plates, which fit into the flanges.

## Heat-Resistant Hard Rubber

Ace Tempron, a new synthetic hard rubber compound developed by American Hard Rubber Company, 93 Worth Street, New York, N. Y., is claimed to have made even greater chemical resistance, strength, and economy of hard rubber available for sustained high-temperature applications in handling many corrosive solutions.

Based on nitrile synthetic rubber (Buna-N), Tempron is a hard rubber, and is claimed to have greater rigidity, heat resistance and chemical resistance than the hard and soft nitrile rubber compounds. At present, Tempron is available in four forms: pipe and fittings; molded parts, with limitless design possibilities; sheet, rod and tubes from which a wide variety of shapes can be machined or fabricated; and a hand-fabricating process for making tanks, large fittings, etc., by forming sheets of Tempron around cores or mandrels while still in the soft state prior to vulcanization.

Tempron has high tensile strength, (7,500 p.s.i.). Its heat distortion temperature is 260-275 deg. F. Excellent di-electric properties suggest applications in electrical parts operating at high temperatures. It also offers an opportunity to save weight.

**SOLVENTS and THINNERS RECOVERED**

from wash thinners, spoiled lacquers, degreasing machine sludge, etc.

**Solvents recovered by the Lofgren Process.**

Each customer's shipment, whether one drum or a carload, receives proper and separate treatment. *Write to:*

**Solvents Recovery Service, Inc.**
101 Central Ave. Westfield, N. J.

**Hammond Solvents Recovery Service**
241 Brunswick St. Hammond, Ind.

## PRODUCT LITERATURE

For further information on any product mentioned in this issue—use the READER SERVICE CARDS between the covers.

**Volatile Corrosion Inhibitor Bulletins.** Two new illustrated bulletins, **Dry Vapor Pack-velopes,** and **Technical Bulletin VT-1,** describing a modern method of protecting ferrous metals and aluminum from rust and corrosion without using oil, or grease, are offered by the Berlin and Jones Co., Inc., 601 W. 26th St., New York 1, N. Y.

Technical Bulletin VT-1 was written to serve as a general primer, or ABC of VCI and "VPI" corrosion inhibitors. Among the many subjects covered by questions and answers are: definitions of VCI, "VPI" and VIP; proper and improper applications, "bugs" to guard against; VCI as a control for finger print corrosion; toxicity; galvanic action; reactions with non-ferrous metals and non-metals; effects of moisture and condensation; shelf life and package life; plus other basic data.

General Bulletin GB-1 deals specifically with Berlin and Jones "DryVapor Pack-velopes, a positive protection for Steel and Aluminum." Cost saving and time saving advantages obtained from using these industrial engineered envelopes in production and in final shipment are enumerated and explained. An interesting comparison of old and new methods of corrosion control, citing specific examples, is included in Bulletin GB-1.

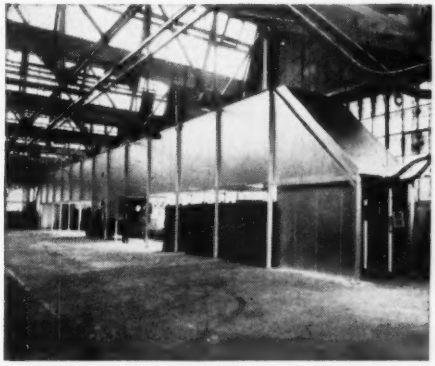
**Everything for Safety** is the title of a 144-page catalog announced by the Boyer-Campbell Co., 6540 St. Antoine St., Detroit 2, Mich. The book describes face shields, Supersight, Skin-Cote liquids and creams for protection against skin infections, and safety clothing.

# A *LOT MORE* THAN FANS, DUCTS, HEATERS, AND PANELS

GO INTO

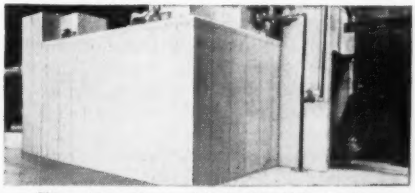
## LANLY
FINISHING OVENS

● The proper adaptation and utilization of the essential component parts in every LANLY OVEN for maximum operating efficiency and economy, is a certainty being demonstrated every day in factories throughout the country. Specialized knowledge evolved from long experience and close cooperation with our customers enables us to design and erect better finishing ovens.

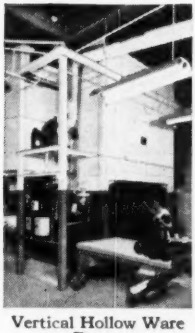


**LANLY FINISHING OVEN** Completely automatic LANLY A-Type Continuous Paint Baking Oven. Compact, built-in heating system affords rapid, uniform baking. Natural hot air seals at open ends. Space under oven can be utilized to advantage.

Two Continuous Laydown Dryers



Three-Pass Oven with Air Seal Vestibules

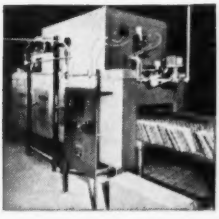


Vertical Hollow Ware Dryer

Ceiling Suspended Continuous A-Type Paint Oven

LANLY
FINISHING OVENS
THE LANLY COMPANY • 760 PROSPECT AVE
CLEVELAND, OHIO

Continuous Wicket Type Oven



*Write for the NEW LANLY CATALOG*

**Detrex Equipment.** Degreasers, washers, and processing equipment are illustrated in a four-page folder available from Detrex Corp., Box 501, Detroit 32, Mich. Features of the various pieces of equipment are indicated and Detrex chlorinated solvents and alkali and emulsion cleaning compounds are listed.

---

**Data Sheets for Aluminum Bright Dip.** The Kaynide Division of Kraft Chemical Company, Inc., 917 W. 18th St., Chicago 3, Ill., now has available a series of operating instructions and data for Alchemize Aluminum Bright Dip. These sheets list the operating characteristics and directions for solution preparation, solution operation and control, recommended treatment cycle, notes on operating techniques, and equipment requirements.

---

**Horizontal Plate Varnish Filters.** The principle of operation of the Sparkler horizontal plate filter is illustrated and described in a four-page leaflet produced by Sparkler Manufacturing Co., Mundelein, Ill. A method of continuous operation and cleaning are explained, advantages, range of application, and specifications are also listed.

---

The U. S. Stoneware Company, Akron, Ohio, has issued **Bulletin G-520, on "Tygon Corrosion-Resistant Gasketing."**

This 4-page, 2-color bulletin gives complete information on the basic compositions and physical characteristics of Tygon gasketing. It tells where and how Tygon gasketing is applied. It provides a frank discussion on the advantages and disadvantages of Tygon compounds over other gasketing materials. Charts showing the complete line, plus an excellent table on specific applications of standard Tygon gasketing formulations are also included.

**High Speed Nickel Plating.** An 8-page booklet with ten illustrations and charts has been made available by International Nickel Co., Department EZ, New York 5, N. Y., which gives the results of investigations of plating deposits of .001 to .003 inch in eleven minutes. The plating solutions used and procedures followed in the tests are presented.

---

**Industrial Chemicals & Processes,** an illustrated catalog announced by Whitfield Chemical Co., 14225 Schaefer Highway, Detroit 27, Mich., contains data on cleaning of metal surfaces and assemblies, preparation for painting, and stripping organic finishes.

It describes in detail the various processes used for removal of paint coatings from rejected parts and work hangers; removal of oil, grease, buffing compound, drawing compound, abrasives, and chips before painting, plating, assembly, and so forth; removal of oil, rust, and scales; formation of rust inhibiting phosphate coating before painting; and industrial maintenance and cleaning before repair.

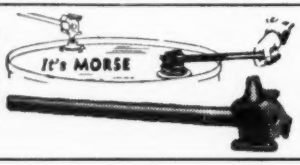
---

A clearly illustrated leaflet describing the construction of their **Portable Lucite Plating Barrel** is available from Geo. A. Stutz Mfg. Co., 1647 Carroll Ave., Chicago 12, Illinois. The leaflet includes a list of the operations which can be handled by the barrel, dimensions of the two designs available and illustrations of the barrel and method of unit suspension.

---

**MA Model Demineralizer.** A catalog sheet available from the Penfield Mfg. Co., Inc., 19 High School Ave., Meriden, Conn., describes Penfield's Fully Automatic Mono-Column Demineralizers. The front of the sheet contains a photograph and schematic diagram of one model, and the back sheet lists a detailed description of parts, sample specifications and performance data.

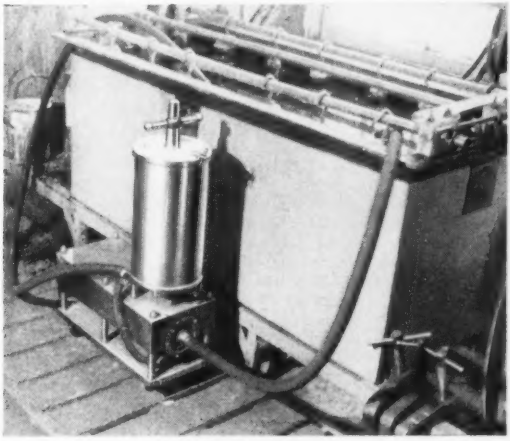

Send NOW for this FIT-ALL
**DRUM PLUG WRENCH**
*Instantly loosens, tightens 95% all plugs or bungs in steel drums.* Has 16" extra-strong steel tubing handle. Wgt. only 2 lbs. Order 1 or more today!




THOUSANDS IN USE saving time, labor, accidents!
SATISFACTION GUARANTEED.... **$3.00**
Non-sparking type .... $4.60
*Plus Parcel Post*
**MORSE MFG. CO., Inc.**
762 W. Manlius St., E. Syracuse, N. Y.

# Here's how to cut your losses

## get better finished plated work — save time and labor



The "*Sealed-Disc*" Filter will remove all dirt, dust, and sludge from your plating solutions. You will no longer worry about pitting, spotting, poor adhesion, formation or nodules, etc.

**More and more platers testify to the remarkable savings in operating time and labor that the "*Sealed-Disc*" Filter gives them. These cost-minded platers get better finished plated work and have found that their solutions last l o n g e r . "*Sealed-Disc*" Filters, designed to meet plating room requirements, are smaller, more compact and portable, than ordinary conventional filters.**

**Regardless of the size or type of your installation, there's a "*Sealed-Disc*" Filter to "fit your job". You can depend on a "*Sealed-Disc*" Filter for positive, trouble-free performance that's proof against even the invisible impurities that cause nodules and porousness, proof against losses caused by rejects and reworking. Write for complete details or contact your regular plating supplier.**

**ALSOP**

**ENGINEERING CORPORATION**

***Filters · Filter Discs & Sheets · Mixers · Agitators***

**803 Keen Street Milldale, Connecticut**

OTHER ALSOP PLATING ROOM EQUIPMENT

We manufacture a full line of Mixers and Agitators covering a complete range of sizes, for mixing, blending, and dissolving. Stainless Steel Mixing Tanks are also available in a wide range of capacities. For full details and illustrations write for your free catalog.

**Duroplastic Tanks.** An illustrated leaflet describing the characteristics of Duroplastic tanks is available from Duroplastic Tanks, 376 Washington St., Malden, Mass. Solutions for which the tanks are recommended are outlined, and standard sizes of the product which are available for immediate delivery are listed.

---

**Plating Barrel Bulletins.** Available from Daniels Plating Barrel & Supply Co., 129 Oliver St., Newark 5, N. J., is a bulletin describing the construction and operation of the **Type OLS Plating Barrels.** The operation of the barrels is described fully with particular reference to speed of loading and unloading and ease of handling. Special construction features including the completely rubber insulated contact frame which supports the plating cylinder are included.

Also available is a bulletin describing the construction and operation of the **Daniels Type H Plating Barrel.** Described in the bulletin are the design features of this product together with suggestions as to particular applications where the barrel may be used most effectively.


**Modern Masking Materials and Methods for Fabrication and Spray Finishing**

**By Arthur P. Schulze**

***64 Pages*** ***47 Illustrations***

Written for department superintendents, shop foremen, process and finishing engineers . . . this manual is a source of ideas for saving time, cutting costs and getting better product quality.

*Price $1.00*

**PRODUCTS FINISHING**

**431 Main St., Cincinnati 2, Ohio**


A new, 16-page catalog on **"Complete Finishing Systems"** has just been published by Cincinnati Cleaning & Finishing Machinery Company, Schmidt Building, Cincinnati, Ohio. The new literature illustrates and describes a wide variety of finishing systems and equipment.

Both integral (self-contained) systems and unitized types are covered. The examples shown cover small and large parts, auto hardware, ordnance and similar finish applications.

Processes outlined include: pre-treatment—acid, alkali or solvent cleaning; paint application—by spray, dip or flow; drying or baking—using gas, steam, oil or electric heat and make-up air—replacing plant air exhausted by the three previous operations.

Considerable data is given outside of the installation examples which are handled in "case history" manner.

---

**Brady QUIK-MASKS for use on Anodized and Similarly Treated Surfaces,** is the subject of a **Technical Data Bulletin** available from W. H. Brady Co., 776 W. Glendale Ave., Milwaukee 12, Wis. Complete instructions relative to proper use of the masks, physical properties of the masks, and suggestions for testing the efficient operation of the masks are included in the bulletin.

---

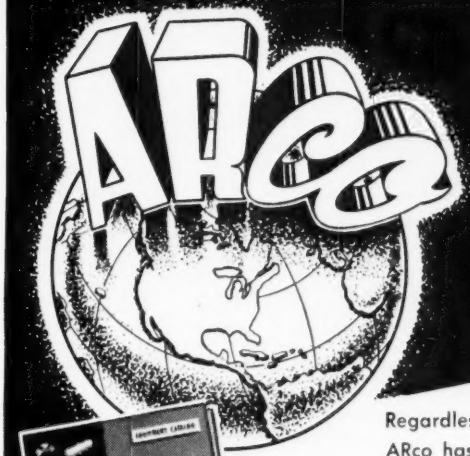
**Calrod Heating Catalog.** The 1953 edition of a catalog on Calrod electric heaters and heating devices has been announced as available from General Electric, Schenectady 5, N. Y. Designated as **GEC-1005D**, the 60-page, two-color information and buying guide describes the equipment in terms of application, special features, installation, and pricing.

Indexed by process and application, the catalog also contains methods of determining power requirements and heat losses by applications. These are explained by both graphs and formulas. Another feature of the publication is an index of General Electric application bulletins, and data and specification sheets available from the company.

A total of 175 photographs and drawings illustrate the various heater-types of products, including immersion, strip, cartridge, tubular, insertion, and fin heaters. Other devices described in G.E.'s "Red Book" of heating are melting pots, thermostats, switches, oven heaters, and induction heaters.

THE SYMBOL OF QUALITY AND SERVICE

# RUBBER LINED PLATING EQUIPMENT



Regardless of the phases in your operations, ARco has the *right protective covering and services* to meet your electroplating requirements. Consult our Engineers for rubber covering recommendations that can help you lower plating costs, increase production and improve quality.

Corrosion-resistant ARco rubber coverings are applied to Tanks and Accessories, Diaphragm Systems, Parts Separators, Air Agitation Systems, Grids and Screens, Ventilation Equipment, Pipes and Fittings, Materials Handling Equipment.

**SEND FOR THIS VALUABLE DATA TODAY!** See the many practical, economical methods and products ARco-engineered and designed to improve your products and operations.

LICENSED SARAN APPLICATORS

**AUTOMOTIVE RUBBER CO., INC.**
8613 EPWORTH BLVD. DETROIT 4, MICHIGAN

**ARCO RUBBER PROCESSORS**
4033 HOMESTEAD ROAD • HOUSTON, TEXAS

ANYTHING CAN BE COVERED WITH RUBBER — BY ARco

MANUFACTURERS • DESIGNERS • ENGINEERS

**Syntron Products. Catalogue No. 531** available from the Syntron Co., Homer City, Pa., illustrates and describes the complete line of products manufactured by the company. An index enables the reader to locate the product in which he is interested and then turn directly to the well illustrated product data sheet for the product or products in question.

Of particular interest to the finishing industry are the facts on infra-red drying conveyors, electric heating elements, infra-red radiant heating panels, electric polishers, and selenium rectifiers.

---

**Gilron Drawcote.** Gilron Products Co., 6007 Euclid Ave., Cleveland 3, Ohio, has announced completion of an eight-page, two-color folder describing Drawcote, Gilron's new dry lubricant for use in drawing, forming and extruding operations. A brief description of some of Gilron's drawing compounds and metal cleaners is also included.

A description of tailor-made Gilron Drawcote Application Equipment, including rotary brush washers, coating machines and drawing compound applicators, lists advantages and savings obtainable with this new line of equipment.

---

**Cratex Rubberized Abrasives.** The adaptability, versatility and application of Cratex Rubberized Abrasives, together with complete specifications and prices, are listed in **Cratex Catalog No. 53,** available from Cratex Manufacturing Co., 81 Natoma St., San Francisco 5, California. The catalog contains a complete and comprehensive treatise about rubberized abrasives on burring, smoothing and polishing operations and their use in industrial establishments.

**Air Powered Finisher Bulletin.** A bulletin describing the construction and operation of the Model J-R air powered Easy Finisher is being distributed by Detroit Surfacing Machine Co., 1333 East Eight Mile Rd., Detroit 20, Michigan. Features of the air powered sanding tool, including its "strate-line" reciprocating action, its adjustable sanding pads, and air switch, are described in the bulletin. Examples showing how the Model J-R Finisher may be used to advantage in many industries are included.

---

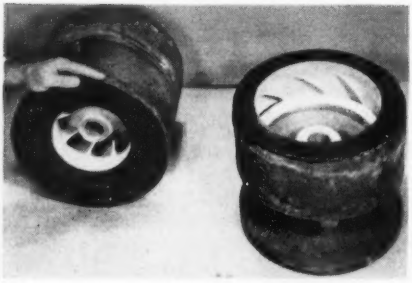
**Organic Chemicals.** An eight-page catalog available from Shell Chemical Corp., 500 Fifth Ave., New York 36, N. Y., lists the solvents, industrial chemicals, resins and plastics, produced by the firm. It describes the products in detail, giving examples of application and listing sales specifications of each.

---

**Paint Stripping Instruction Sheets.** An Octagon Fact Sheet booklet of instructions on paint stripping has been published by Octagon Process Inc., 15 Bank Street, Staten Island 1, New York. It describes in detail and gives exact procedures for using eleven tailored types of Octagon Paint Strippers designed for stripping practically any finish from all metals (including aluminum and delicate alloys) and from all woods. There is also a hint sheet which gives valuable information on paint stripping generally. A handy, quick reference chart makes selection of the right stripper for the job easy.

In convenient, reference sheet form it takes up wipe-on, immersion and spray methods of paint removal by means of hot alkaline, hot solvent and cold solvent tailored types.

---



Indicative of the new uses of porcelain enamel for heavy-duty industrial applications is the interior coating of this deep-well pump housing, part of a pump used to draw water from extreme depths. The glass-like surface of the porcelain enamel reduces friction to a minimum. At the same time, it protects the cast iron metal housing against rust and deterioration. The coating has been evenly applied in a single operation. The tapered fins as well as the circular walls are covered.

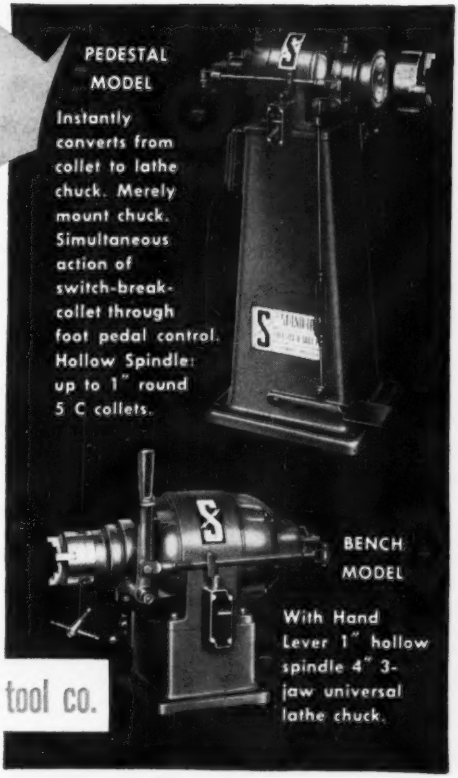
*small parts production increased with*

# STANDARD

## speed lathes

The Standard Speed Lathe has no equal for polishing, burring, filing, countersinking and other small parts operations. Available in bench or pedestal models, Standard Speed Lathes guarantee you Speed, Accuracy and Versatility. Horsepowers from 1/3 HP (1 speed) at 600 RPM up to 1 HP (2 speeds) at 3600 RPM.

Also available: Speed-Chucking Lathes up to 5 HP for chucks up to 12". Multiple speeds or infinitely variable speeds. (50 - 3600 RPM.) Write for complete details.



PEDESTAL MODEL

Instantly converts from collet to lathe chuck. Merely mount chuck. Simultaneous action of switch-break-collet through foot pedal control. Hollow Spindle: up to 1" round 5 C collets.

BENCH MODEL

With Hand Lever 1" hollow spindle 4" 3-jaw universal lathe chuck.

*Standardize with*

the STANDARD electrical tool co.

MACHINE TOOLS

2518 RIVER ROAD • CINCINNATI 4, • OHIO

**Dial Thermometer Bulletin.** A 24-page **Bulletin 98214** has been released by the Taylor Instrument Companies, Rochester 1, N. Y. It describes the latest development in 6-inch dial indicators for temperature, pressure and load applications. Well illustrated, it supplies considerable information on features, dials and scales available, together with excellent reference material on the different types of actuation.

For temperature instruments, a variety of sensitive elements or bulbs are clearly explained and the recommended applications for each, present an easy means for their selection.

Mounting dimensions for the different types of instruments are also included.

---

**Plastisol Bulletin.** An extensive group of plastisols, designated the Hysol 3000 Series, is described in a bulletin published by Houghton Laboratories, Inc., 322 Bush Street, Olean, N. Y. These plastisols are dispersions of high molecular weight polyvinyl chloride resins in selected liquid plasticizers. Available in a variety of different forms, they are said by the manufacturer to offer improved corrosion protection, abrasion resistance and electrical insulation.

Among the plastisols considered in the brochure are types for: electrical insulation; rack, tank and duct coating in electroplating applications; flexible molds; spring coatings; conveyor rack coatings; wire basket coatings; and caulking and sealing.

In addition to descriptive material, the bulletin includes illustrations of various applications; specifications; formulation procedure and application techniques, including dipping, spreading and casting methods.

For further information on any product mentioned in this issue—use the READER SERVICE CARDS between the covers.

**There Is Plenty of Tin.** A 20-page, three-color booklet available from The Malayan Tin Bureau, Dept. 80, 1028 Connecticut Ave., Washington, D. C., was designed to promote a better understanding between Malaya and the United States. The booklet lists the many reasons tin is important, pictures how tin is produced in Malaya and how it is used in the United States, contains a chart of tin statistics showing production, consumption, stocks, and prices of tin.

---

**Infra-red Heating and Drying Equipment Bulletin.** A bulletin describing its electric infra-red heaters is being distributed by the Corona Corp., 5210 San Fernando Rd., Glendale 3, California. The bulletin describes the construction and operation of the heaters and their application, by means of plant installation photographs. Advantages of the Merco Infra-red Heaters, both with regard to construction and operation, are described in the bulletin.

---

**Corrosion Prevention Through Metallizing.** The Metallizing Engineering Co., Inc., 38-14 30th St., Long Island City, N. Y., is offering a leaflet describing Metco systems of protecting metals against corrosion through metallizing. In this booklet are listed the various advantages and typical jobs for this system. There is also a list of general recommendations which indicate the type of system to be used for different exposure conditions.

---

**Permag Cleaning Compounds For Electroplaters.** The cleaning problems that confront the electroplating industry and suggested methods of treatment and solution of those problems are covered in a booklet issued by Magnuson Products Corp., 50 Court St., Brooklyn 1, N. Y.

The booklet contains a comprehensive cross-index, delves into job definitions, job requirements and the considerations necessary in choosing the proper cleaning materials for the job at hand. In addition, safety notes, operating practices and conversion factors and formulas enhance the value to all engaged in electroplating.

The publication covers specifically such main fields as non-tumbling, aluminum processing and paint stripping. Listed also are a number of Permag Compounds.

*Illustration shows cab doors for Autocar trucks being cleaned, phosphate coated, and dried.*

**This METALWASH phosphate coating machine provides an ideal surface for a lasting paint finish on truck chassis and sheet metal parts.**

**Cleaning and phosphating are uniform since the cycle is automatically controlled. Continuous operation, built around the conveyor line, eliminates material handling problems.**

*Write for illustrated catalog*

*Metalwash skill and experience is your assurance of lasting performance*

**METALWASH MACHINERY CORPORATION**
**915 North Avenue, Elizabeth 4, N. J.**
**Representatives in principal cities**

**Koch Industrial Equipment.** Geo. Koch Sons, Inc., Evansville 4, Ind., has produced a number of product analysis sheets on many of the firm's products, some of which are: **Acme Water Wash Spray Booths, Gas Shelf-Type Ovens, Electric Shelf-Type Ovens, Dry Type Spray Booths, Propeller Type Exhaust Fans, and Truck-Type Ovens.** The sheets describe the product; in most cases a diagram illustrating construction features is included, and specifications of the various models are listed.

---

**Bulletin No. 850.** A specification sheet has been issued by H. O. Trerice Co., 1420 W. Lafayette Blvd., Detroit 16, Mich., describing the Trerice vapor actuated electric contact controllers and solenoid valves and relays.

The No. V84002 controller, one of 13 models listed, is pictured, explained and described, including the electrical mechanism, electrical capacity, and standard temperature ranges.

A thorough description of the solenoid valves, including method of operation, operating current, and dimensions and maximum pressure, based on A.C. operation, is included, together with a description of the No. 300 Trerice relays.

---

**Rectifier Brochure.** A free brochure explaining the application of rectifiers to various operations has just been made available by the American Rectifier Corporation, 95 Lafayette St., New York 13, N. Y. In the course of placing its products throughout the country, the company has taken note of questions most frequently asked and has now compiled them, with their replies, in an interesting question-and-answer folder that reveals the many benefits of keeping DC equipment working on AC while retaining speed control.

---

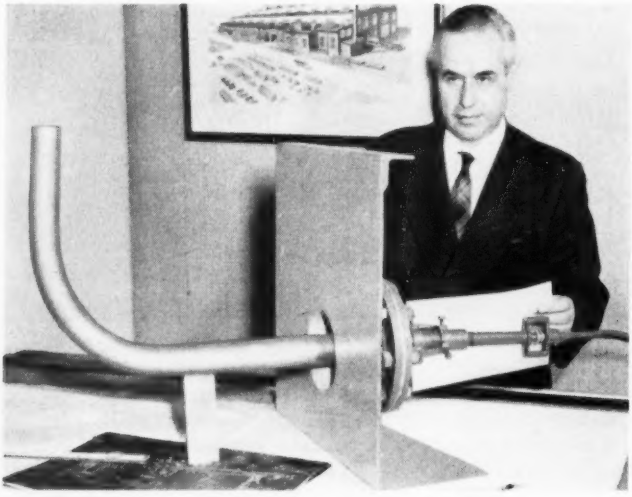


Fig. 2—Shown on the drawing board is the first pilot model of a Ferrolum lead clad steel direct fire gas burner for corrosive acid solutions. Traugott Tschudi, chief design engineer of Knapp Mills, Inc., of New York, designed this burner which admits the gas flame through the wall of a tank into the Ferrolum tube which is immersed in the solution.

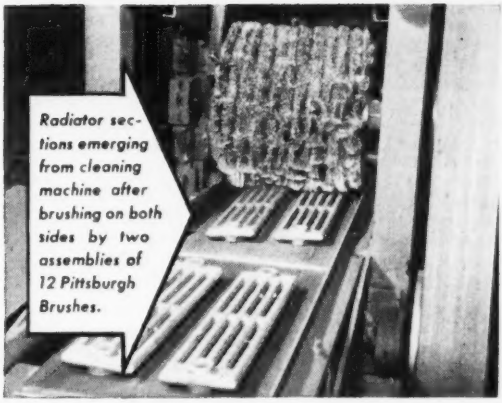
In recent years atmospheric immersion type heaters, fabricated from pipe and fittings, have been developed with excellent results. These heaters are immersed in the liquor to be heated and gas fired by appropriate burner equipment.

Where it is necessary to heat corrosive liquors, such as sulfuric, chromic, phosphoric acids, sulfate solutions, and the like, use of these heaters has been handicapped by the absence of a unit which would have good resistance to a wide variety of concentrations of corrosives at various temperatures.

Another important factor, of course, was that the heaters must be fabricated from a metal with good heat transfer properties.

Ferrolum lead clad steel combines the strength of steel with the ability of lead to resist the corrosives under discussion, and since the lead is chemically bonded to the outside of the steel pipe, heat transfer is excellent. In principle, every form of immersion gas heater which has been practical in steel pipe is practical in Ferrolum. It must be remembered that the temperature developed in the heater is so rapidly dissipated by the surrounding liquor as to prevent any injurious effect on the lead itself.

# Pittsburgh Brushes help you solve problems like these!


Radiator sections emerging from cleaning machine after brushing on both sides by two assemblies of 12 Pittsburgh Brushes.

***Cleaning Narrow Spaces*** — National Radiator Company, Johnstown, Pa., cleans 30,000 radiator sections a week! To insure a perfect final finish, even the narrowest spaces must be absolutely clean prior to assembly. Pittsburgh engineers were presented with the problem of designing a brush that would reach these spaces and would fit National's existing machine. Successful? National reports: Pittsburgh Brushes "do a better job of cleaning and are more economical."

***Preparing Chills*** — At Continental Foundry & Machine Co., East Chicago, Indiana, chills used to cast iron rolls must be cleaned of the oxidized metal remaining from previous usage, as well as dirt and grease accumulated in storage. After experimenting with other brushes, Continental settled on Pittsburgh Brushes because they "do the job better and stand up longer than others previously used."

***Improving Original Equipment*** — The Sommer and Maca Glass Machinery Co., Chicago, Illinois, uses Pittsburgh Brushes in the automatic washing machines they manufacture. Brushes formerly used simply didn't have the over-all density pattern needed. Pittsburgh engineers studied the problem and designed a brush which Sommer and Maca approved "because of denser bristle pattern and lower cost."

**WRITE TODAY FOR FREE BOOKLET!**

Write for a free copy of our booklet that shows, through actual case histories, how Pittsburgh can help *cut your* brushing costs. Address: PITTSBURGH PLATE GLASS COMPANY, *Brush Div.*, Dept. W-8, 3221 Frederick Ave., Baltimore 29, Maryland.

**PITTSBURGH** *Power Driven* **BRUSHES**

BRUSHES • PAINTS • GLASS • CHEMICALS • PLASTICS

**PITTSBURGH PLATE GLASS COMPANY**

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

**Bulletin 96-A.** The American Hard Rubber Company's new heat and chemical resistant synthetic hard rubber compound, Tempron, is described fully in a new 4-page bulletin.

The bulletin, available from The American Hard Rubber Co., 93 Worth St., New York, N. Y., gives complete information on pipe and fitting sizes as well as data covering the physical and electrical properties of Tempron. It lists many chemical solutions that Tempron can handle.

---

**Barrel Finishing Manual.** The Clepo Barrel Finishing Manual is being distributed by the Frederick Gumm Chemical Co., Inc., 538 Forest St., Kearny, N. J. The manual contains general information about barrel tumbling and the selection of the rolling or tumbling medium. Tumbling barrels, compounds, auxiliary equipment, and the use of various products for deburring is discussed in full in this informative manual.


**REPRINTS AVAILABLE**

A limited number of reprints of the following articles from PRODUCTS FINISHING are available to readers. There is no charge for this service.

**"Metal Etching and Anodizing in Color",**
by R. E. Pettit, vice president, Chicago Thrift-Etching Corporation.

**"Chemical Surface Treatment Extends the Durability of KoolVent All-Weather Aluminum Awnings",**
by Norman P. Gentieu, American Chemical Paint Company, Ambler, Pa.

**"Finishing Floor Registers and Grilles at The Auer Register Company",**
by Ezra A. Blount, Editor

**"Filter Out Your Plating Rejects",**
by Ezra A. Blount, Editor

**"Finishing Refrigerators with Hot Sprayed Enamel,"**
by Frank L. Bonem

**PRODUCTS FINISHING**
431 Main Street, Cincinnati 2, Ohio.


**Wet-Blasting Brochure.** The Cro-Plate Co., Inc., 747 Windsor St., Hartford, Conn., has announced the availability of a special combination packet of technical and promotional literature designed to show 29 specific ways in which the costs of deburring, descaling, micro-inch surfacing and general metal finishing operations may be reduced through the use of Pressure Blast high velocity wet-blasting equipment and appropriately compounded Pressure Blast abrasives. The packet consists of a list of 29 customer-proven applications, a description of the equipment and a cross-indexed return post card for those readers desiring more detailed information regarding particular applications, listed or unlisted.

---

**The Laboratory, Vol. 22, No. 2.** A 32-page illustrated publication produced by Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa., presents an article entitled, "High Gear," a report on laboratory contributions to the car of today and tomorrow. Scientists of five major automobile companies contributed to this survey of Detroit's research program.

---

**Thiokol Liquid Polymer LP-2.** Thiokol Corp., Trenton 7, N. J., has issued a four-page leaflet listing and describing representative applications of Thiokol LP-2. The bulletin lists physical properties, explains the compounding of a typical formula, and also lists the properties displayed by the compound when fully cured.

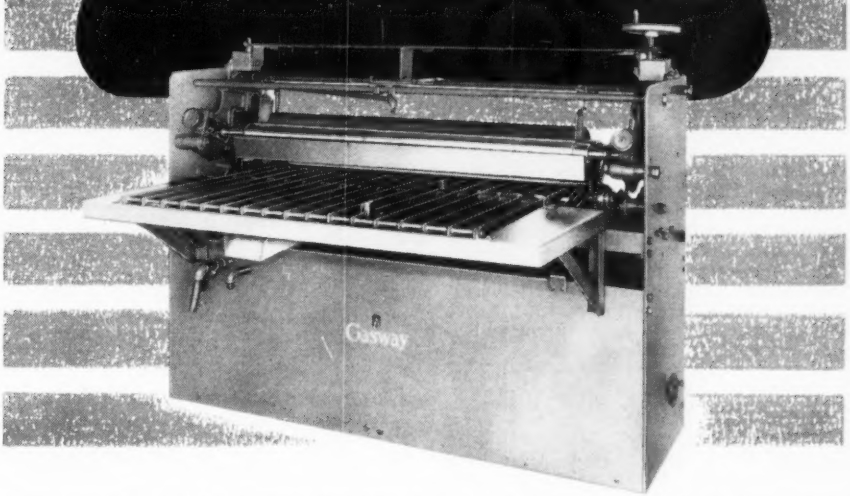
---

**Corrosion Proof Process Equipment. Bulletin No. 460,** which may be secured from Heil Process Equipment Corp., 12901 Elmwood Ave., Cleveland 11, Ohio, pictorially describes the fabrication and lining facilities of the company, including the wide range of acid-proof lining materials applied by lining craftsmen in the Cleveland plant. A complete chart of all standard designs for heating and cooling units constructed of Nocordal, including both external and immersion units, and illustrating one of the most complete lists of designs available, appears on page 3 of this four-page folder.

Also described are the plastic fabrications, units constructed of Rigidon (glass reinforced polyester), Rigivin (unplasticized polyvinyl chloride) and Rigidene (polyethylene type).

# Rollacoat for economy

## GET FINER—FASTER FINISHING!




The benefits to be gained by using the Rollacoat method of applying finishes and protective coatings, to practically any type of flat materials, are three-fold. In the first place coating speeds are greatly increased over those of any other method and are governed largely by how fast the coated materials can be handled or dried. Secondly, the coverage per sq. ft. per gallon is usually at least 50% greater, the only loss being the paint removed from the rolls at the end of a run. In the third place you obtain finer quality of finish due to accurate control of thickness and eveness of coat.

The applications of Rollacoating are numerous. Top, bottom and sides of practically any type of flat material, whether sheet or coil stock, can be coated by a single pass through the machine.

Special equipment for cleaning, treating, coating, drying, and rewinding strip in continuous process can be constructed to special order.

**GASWAY CORPORATION**

Write or wire today for the 12 page Gasway illustrated book describing Rollacoat Finishers, their possibilities and limitation.

**6463 N. Ravenswood Ave.**
**Chicago 26, Illinois**

**For more complete information on products and processes use READER SERVICE CARDS inside covers.**

**Magic Dry Bulletin.** Properties of an addition agent to be used in rinses following plating cycles to prevent staining on plated work is described in a bulletin available from Mitchell-Bradford Chemical Co., 2446R Main St., Stratford, Connecticut. The use of the product in connection with plating cycles and barrel finishing cycles is described.

**Hardness Conversion Tables for Steels.** Available from International Nickel Co., Inc., 67 Wall Street, New York 5, N. Y., is a wallet size, celluloid card listing approximate relationship between Brinell, DPH (Vickers), Rockwell and Shore Scleroscope hardness values and corresponding tensile strengths of steels, based on data from Society of Automotive Engineers 1948 Handbook.

**Electroplated Rhodium.** A data sheet issued by Technic Inc., Dept. 10, P. O. Box 965, Providence 1, R. I., details the factors of corrosion resistance, hardness electroplated, electroplating specifications and rhodium thickness requirements for different purposes, as well as the physical and electrical properties of rhodium.

**Bulletin TL-526.** The U. S. Stoneware Co., 60 E. 42nd St., New York, N. Y., has released a brochure entitled Tygon Corrosion-Resistant Linings. This 12-page, 2-color, fully illustrated bulletin presents the complete history of Tygon as a lining and covering material. It discusses Tygon's composition, physical forms and properties, and where and how to apply it. Extensive tables give a thorough picture of Tygon's chemical resistance.

**Fabricated Alloys.** Rolock Incorporated, Fairfield, Conn., announces the availability of Booklet No. B-9 (Corrosion Resistant Section).

This section describes and pictures baskets, racks, crates, tanks, sinks and special equipment for degreasing, cleaning, dipping, galvanizing, pickling, quenching, and other processing operations. Designs and specific duties of each type of basket is included.

**Ohio River Valley Water Sanitation Commission Fourth Annual Report.** The clearly printed, attractive report available from the Ohio River Valley Water Sanitation Commission, 414 Walnut St., Cincinnati 2, Ohio, depicts how the Commission operates in making investigations, drafting regulations and promoting compliance. It also includes a list of publications available from the Commission.

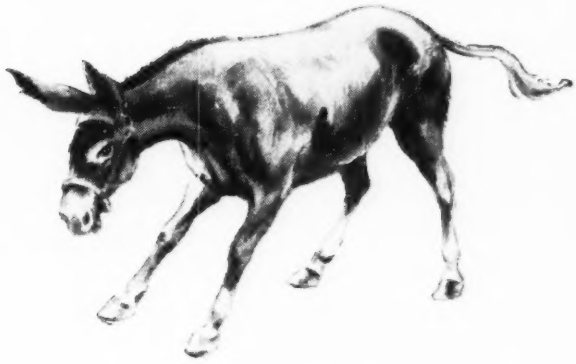
**Lubrication Process for Cold Extrusion** A phosphate coating and lubricating process, which makes possible the cold extrusion and forming of steel is fully described and illustrated in an 8-page booklet which is available from Detrex Corporation, Box 501, Detroit 32, Michigan. This process, identified as Extrudite, is applicable to carbon and stainless steels.

**Brady Self-Adhesive QUIK-MASKS** are described in **Bulletin 160-B,** available from W. H. Brady Co., 776 W. Glendale Ave., Milwaukee 12, Wis. Use of the masks to cover openings during spray painting operations is described in the bulletin, as well as other suggested uses. Full information regarding characteristics and applications of Quik-Mask is included in the attractive four-page, two-color, illustrated bulletin.

**Composition Of Industrial Metals.** An unusual metals chart, showing the compositions of all commonly used metals and alloys in industry, has been prepared by Sam Tour & Co., Inc., 44 Trinity Place, New York 6, N. Y., a firm of research and testing consultants. The chart lists the constituent elements and the percentage ranges for 60 different classes or types of metals arranged in the following groupings: light metals, irons, steels, cobalts, nickels, coppers, white metals, precious metals, heavy metals and special purpose metals. Also shown is the atomic number and specific gravity of each of the 48 elements commonly encountered in industrial metals.

Approximate dimensions of the chart are 16 by 34 inches. A two-page explanation accompanies the chart, describing the purpose of the chart and giving useful definitions of various types of metals.

# Jenny doesn't live here any more!



**YES, in the modern coal mine** there's no room for Jenny. Today, powerful electric locomotives pull 50 times the load that Jenny hauled to the mine surface.

And in today's mine, even the traditional pick and shovel are out-of-place! More than 90% of *bituminous* coal is now mechanically cut, over 70% is mechanically loaded. Result: more economical coal to light the way, fuel the fires, power the progress of America.

**But, basically, what caused** Jenny to disappear? What's behind American industry's ever-more efficient machines that turn out goods at lower cost—thus making them available to more people? One word tells the story—COMPETITION.

In the coal industry 5,000 privately managed coal companies compete with one another. When one company develops more efficient methods, the rest can keep pace only by striving to improve even further. No wonder that, with his modern machines, the American miner's daily output is 4 to 24 times that of any miner in Europe or Asia—most of whom work in government-controlled coal industries.

**Just as competition spurs *you*** on to trying harder—competition goads the individual company to deliver products that will outsell. And competition keeps a whole industry on its toes, cutting distribution costs, opening new outlets, delivering better products.

Competition—not government control—has already made America the most productive nation on earth. Competition—not regimentation—points the way to ever greater plenty for all of us.

★ ★ ★

*This report on PROGRESS-FOR-PEOPLE is published by this magazine in cooperation with National Business Publications, Inc., as a public service.*

**THE COMPETITIVE SYSTEM DELIVERS THE MOST TO THE GREATEST NUMBER OF PEOPLE**

*The Finishing Touch* — **By J. A. Patterson**

***"Mr. Raleigh, here, is foreman of the Protective Coating Department."***

# Opportunity Section

## SOUTH FLORIDA TEST SERVICE

**Testing—Inspection—Research—Engineers**

Consultants and specialists in corrosion, weathering and sunlight testing.

**4201 N.W. 7th St., Miami 34, Florida**

## REPRESENTATIVES WANTED

Nationally known manufacturer of Roller Coating equipment will consider appointing a few select representatives to handle complete machinery line. National trade paper advertising produces many profitable leads. In reply, state manufacturers you now represent, territory traveled and classification of trade called upon. Box No. 43, c/o Products Finishing, 431 Main St., Cin'ti 2, O.

## SALESMAN—INDUSTRIAL FINISHES

STATE OF WISCONSIN

EXCEPTIONAL OPPORTUNITY TO STEP INTO ESTABLISHED TERRITORY

Nationally known industrial finishes manufacturer has splendid opportunity for experienced salesman whose current earnings are in the upper four-figure bracket—but wants to earn more.

The "go-getter" we select will step into an already established, highly lucrative territory with an unlimited sales potential.

Replies will be treated in strict confidence. Our employees know of this advertisement. Box No. 44, c/o PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio.

## INDUSTRIAL SALES

Manufacturer of Circo Vapor Degreasing Equipment and Degreasing Solvents desires experienced sales representation in established territories.

**Topper Equipment Company**

**Clark Township, Rahway, N. J.**

Salesman wanted for New York State and Pennsylvania, calling on industrial accounts to handle line of Industrial Brushes. Box No. 41, c/o PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio.

This Opportunity Section is available for classified advertisements. For advertising rates and other information address:

**PRODUCTS FINISHING**

431 MAIN STREET, CINCINNATI 2, OHIO

**CHEMIST WANTED**—Chemist wanted by leading New England Manufacturer and Distributor of plating chemicals, supplies and equipment. Work principally development and research on metal cleaners, buffing compounds, and finishing processes. Opportunity for customer contact and service work with eventual sales position a possibility. Reply in writing stating experience, training, and salary requirement. Box No. 42, c/o Products Finishing, 431 Main Street, Cincinnati 2, Ohio.

## FINISHING EQUIPMENT FOR SALE

Paasche Automatic Airpainting and Drying Unit Complete with Water Wash Booth. • R. C. Mahon Spray Booths with Blower, Pump, Filter, Turntable, Etc. • Barrett Centrifugal Enameler for Filwhirl or Dipspin Methods. • Binks and DeVilbiss Pressure and Mixing Tanks. Sizes 5 to 125 Gallons. • C. M. Hall Infra Red Oven, Degreasers, Blowers, Motors, Switches, Etc.

*WRITE FOR PARTICULARS, OR INSPECT AT*

**GENERAL TRADERS, INC.**

**2675 W. GRAND AVENUE • CHICAGO 12, ILLINOIS**

# INDEX TO ADVERTISEMENTS


Allied Research Products, Inc. ..... 39
Almco Div., Queen Stove Work, Inc. 32
Alsop Engr. Corp. ..... 129
Alvey-Ferguson Co. ..... 29
American Chemical Paint Co. ..... 59
Automotive Rubber Co. ..... 131

Bacon Felt Co. ..... 78
Baker & Co., Inc. ..... 125
Better Finishes & Coatings, Inc. ..... 71
Blakeslee & Co., G. S. ..... 6
Bond Chemical Products Co. ..... 93
Buckeye Products Co. ..... 117

Carborundum Co. ..... 19
Cincinnati Cleaning & Finishing Mchry. Co. ..... 15
Columbia Electric Mfg. Co. ..... 42
Cowles Chemical Co. ..... 22

Darco Dept., Atlas Powder Co. ..... 105
Despatch Oven Co. ..... 63
Detrex Corp. ..... 4th Cover
Detro Mfg. & Sales Co., Inc. ..... 28
DeVilbiss Co. ..... 10-11
Doepke Mfg. Co., Chas. Wm. ..... 30
DuBois Co. ..... 9
DuPont de Nemours & Co., E. I., Electrochemicals Dept. ..... 77

Egyptian Lacquer Mfg. Co. ..... 4
Exolon Co. ..... 43

Formax Mfg. Co. ..... 65
Fostoria Pressed Steel Corp. ..... 60-61

Gasway Corp. ..... 139
Glidden Co. ..... 20-21
Grav-I-Flo Corp. ..... 88-89

Hammond Mchry. Builders, Inc. ..... 8
Hanson-Van Winkle-Munning Co. ..... 3, 72-73
Harshaw Chemical Co. ..... 121

Industrial Filter & Pump Mfg. Co. ..... 38
International Nickel Co., Inc. ..... 69

Jensen Specialties, Inc. ..... 67

Keystone Emery Mills ..... 102
Kirk & Blum Mfg. Co. ..... 113
Klem Chemicals, Inc. ..... 75

Lanly Co. ..... 127
Lasalco, Inc. ..... Third Cover
Lea Mfg. Co. ..... Second Cover
Lowe Bros. Co. ..... 80-81

Mahon Co., R. C. ..... 46-47
Manufacturers Processing Co. ..... 101
Metalwash Mchry. Corp. ..... 135
Milburn Co. ..... 62
Minnesota Mining & Mfg. Co. ..... 14
Mitchell-Bradford Chemical Co. ..... 123
Morse Mfg. Co., Inc. ..... 74, 128

National Air Sander, Inc. ..... 7
Neilson Chemical Co. ..... 18
Newcomb-Detroit Co., Inc. ..... 76
Nobles Engr. & Mfg. Co. ..... 35
Northwest Chemical Co. ..... 87
Norton Co. ..... 2

Oakite Products, Inc. ..... 1
Olsen Co., Stuart C. ..... 40
Osborn Mfg. Co. ..... 111

Panoco ..... 102
Park Chemical Co. ..... 104
Parker Rust Proof Co. ..... 119
Phillips Mfg. Co. ..... 45
Pioneer Rubber Co. ..... 34
Pittsburgh Plate Glass Co. ..... 137

Randolph Products Co. ..... 53
Rockford Varnish Co. ..... 115

Schmieg Industries ..... 27
Sherwin-Williams Co. ..... 56-57
Siefen Co., J. J. ..... 55
Solvents Recovery Service, Inc. ..... 126
Speedway Mfg. Co. ..... 64
Standard Electrical Tool Co. ..... 133
Stevens, Inc., Frederic B. ..... 41
Striplastic Co. ..... 52
Stutz Mfg. Co., Geo. A. ..... 66
Sulphur Products Co. ..... 84
Sundstrand Machine Tool Co. ..... 37

Thompson & Co. ..... 26
Titeflex, Inc. ..... 54
Triangle Equipment Co. ..... 36

Udylite Corp. ..... 16-17
United Chromium, Inc. ..... 12-13

Van Camp Products & Sales Co ..... 84
Varnish Products Co. ..... 44

Wagner Bros., Inc. ..... 33
Wiegand Co., Edwin L. ..... 31

Young & Bertke Co. ..... 79

# Plate Small Lots Faster, Better, At Lower Cost!

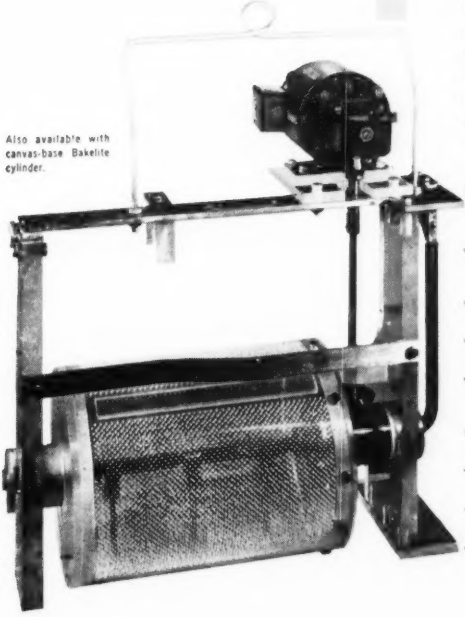
## Lasalco's

## UTILITY BARREL PLATER

Equipped With

## HIGH TEMPERATURE LUCITE CYLINDER

Whatever the process—whatever the grade or type of material—you can plate the small lots with much greater uniformity, and do it in far less time at lower cost with a Utility Barrel Plater. No other equipment in its price range can match it!



Also available with canvas-base Bakelite cylinder.

### Look At These Time-Saving Profit-Making Features

- ✓ Just hang it on the cathode rod in any plating tank and plug it into the nearest electric socket.
- ✓ Extreme portability makes it easy to load and unload.
- ✓ Hand shifting of cylinder is completely eliminated.
- ✓ Dragout loss is reduced to a minimum because barrel rotates as it is lifted from solution.
- ✓ Nothing plates but the load—there's no "tree-up" on the cylinder.
- ✓ Lucite cylinder resists all normal plating solutions and temperatures up to 180° F.
- ✓ Rugged, specially designed geared-type motor.
- ✓ Two cylinder sizes: No. 1—6" diameter x 12" long; No. 2—9" diameter x 12" long.

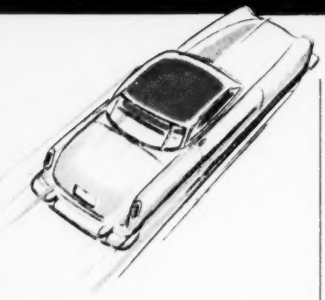
*Ask For Details Today!*

## LASALCO, INC.

2818-38 LASALLE STREET • GRand 2990 • ST. LOUIS 4, MISSOURI

# give the GO signal to DETREX

## for guaranteed degreasing performance



When you give the go-signal to Detrex, a skilled, well-coordinated team goes into high gear on your degreasing needs. One of our trained field staff surveys your operations, makes on-the-spot tests and demonstrations, and takes into consideration every factor that plays a part in overall degreasing efficiency. With this information, Detrex chemists and technicians from our laboratories join efforts with our equipment engineers to determine the type of degreasing operation best suited for your needs. Then, final recommendations are submitted to you along with actual performance data for the operation. *The results are guaranteed!*

Detrex guarantees results because only Detrex has complete control of the process from start to finish. Detrex is the world's leading manufacturer of degreasers—industry's largest direct supplier of trichlorethylene degreasing solvent. Detrex is the *only* company that produces both.

But Detrex service does not stop with delivery on your order. The Detrex Field Service Engineer visits your degreasing operation regularly to make sure it continues at maximum efficiency and economy. He will point out ways to conserve solvent and increase production. Detrex assists in the training of operators and supervisors. In effect, they become skilled advisors on your staff without fee. There is absolutely no charge for the service . . . it comes automatically to Detrex customers.

Give the go-signal to Detrex on your degreasing operations. It will save you money, assure results.

## for free literature

*The new Detrex Degreaser Catalog clearly illustrates the advantages of Detrex degreasing equipment and shows several types of hand operated and conveyorized models. For your free copy of this valuable reference piece, simply fill out the coupon below or write direct to the department shown. No obligation, of course.*

**DETREX CORPORATION,**
**Dept. 108A, Box 501,**
**Detroit 32, Michigan**

Please send me a copy of your new Degreaser Catalog.

NAME.....

COMPANY.....

ADDRESS.....

CITY.....ZONE...STATE.....

DETREX CORPORATION

DEGREASERS • DEGREASING SOLVENTS • WASHERS
ALKALI & EMULSION CLEANERS • DRYCLEANING
EQUIPMENT • PHOSPHATE COATING PROCESSES